WAR

Practically Perform'd:

SHEWING

All the REQVISITES

Belonging to a

Land-Army,

IN

Marches, Battels, and Sieges.

Deduced from

Ancient and Modern Discipline

By the Experience of

Captain NATH. BOTELER.

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To the Honourable

Sir RICHARD BROWN

Knight and Baronet,

Major-General of the City of *London*, by His Majesties ſpecial appointment.

SIR,

THE Spheres in their ſeveral Orbs turning about the Centre that glorious Luminary the Sun, do by a mutual concord ſerve in their courſes to the preſerva-

tion of the whole Universe. Even so is it with sublunary Bodies in Terrene Governments. The King (who is not onely Head but Heart of his Subjects) makes use of suitable Spirits to grand Imployments, that so the refulgent Rays of Regality may disperse the influence of good Government amongst his people.

The eminencie of your late sufferings in our distractions, hath most worthily raised you to be a Star of the first Magnitude in the Sphere of this great and populous City. And no wonder, when the meaneſt

amongst

amongst us hath found your exquisite industry in making *Justice Scale* an Armature sufficient to defend our heads from the fury of *Mars* his sword? Tis certain, when Military and Civil Knowledge concur in one Magistrate, the Citizen may then sleep securely, and look upon his Shop without fear of filching. Your Genius leading you naturally to use both Swords, (being centred and cemented in you by long Experience) it hath been a motive inducing me to present you with this *Posthumous* Work of a Learned Author. No doubt but something may

be found worthy observation therein, he having so ingeniously compared Ancient with Modern Discipline, and drawn the whole Art of War into a Compendious Manual. It may be lookt upon as a *Generals* Guide, or rather Remembrancer, and the Souldiers Instructor in the Politick part of War; by which means Natural Valour and dayly Experience may make him capable of climbing to the highest pitch of preferment. Sir, I hope you will peruse it with pleasure, and finde such content therein as may be a recreation to

your

your Martial Spirit; which will something extenuate the boldness of

Your Servant

H. F.

A

A DISCOURSE OF The Requisites in making of a War by Land.

BOOK I.

Of Munitions, comprehending Moneys, Arms, and Victuals.

THere are three especial Requirables in the making of War by Land: *Munitions, Men, Discipline.*

Under *Munitions* are comprehended all such materials, or things in general, as a War cannot be without: And these, *via apparanda sunt, ut vincas citius.* And the principal of these are,

Moneys, Arms, and Victuals; for *Disciplinam non servat jejunus exercitus.*

The second Requirable being *Men* or Bodies, are distinguished into Common-Souldiers, and Officers or Commanders: Of Common-Souldiers, there are Foot-men and Horse-men, or the Infantry and Cavalry: Of Commanders; the Generalissimo (who is to be onely One, under the penalty of losing All) and his Sub-Alterns, as the Lieutenant-General, the Lord Marshal, the Serjeant-Major-General, the Colonel-General, with the rest of the Officers of the Field, hereafter to be particularized.

The third Requirable (as inseparable in a regular War as any of the rest; for, *plura consilio, quam vi perficiuntur*) is *Discipline.* And this comprehendeth all Councils of War, Martial Courts, Stratagems, and Actions of that nature; as also managements of Arms, Forms of Battails, Marchings, and the like. And of every one of these, in this our Treatise, somewhat shall be observed; but very briefly of them all.

CHAP.

CHAP. I.

The neceſſity of Treaſures. How they are attained by ſeveral Princes: and how they may be beſt preſerved.

AND firſt of the firſt principal, (Monies or Treaſure) included under the firſt Requiſite, which is *Munition.* Now Treaſure or Monies are juſtly termed the ſinews of a War, as without which no orderly War can march or be managed; and therefore not to be undertaken (eſpecially offenſively) without a ſufficiencie of this kind, timely and beforehand laid up. The wiſe VVarriour, as well as the wiſe Builder, being in the firſt place to fore-caſt his accounts and future expences, before he enter upon any Action of this Nature. And herein the main difficulties are how to attain them, and how to preſerve them.

The Tyrants of the Eaſt, as the great *Sultan*, the *Perſian*, the *Mogol*, and the *Tartarian*, furniſh their vaſt expences of this kind, by being abſolute Lords of all their peoples Eſtates, who are all their

slaves. The Christian Princes, who pretend not so far this way, but govern more moderately, do this much after one manner, allowing onely some petty varieties; as the Monarchs of *Spain*, by their Customs upon imported and exported Merchandise, but in particular and chiefly by their rich and unexhausted Mines in *America*. The *French* Kings by Customs likewise, and Imposts, and especially Imposts upon Salt. The Monarchs of *Great Britain* by Customs also, but most substantially and thoroughly by Subsidies and Fifteens granted in Parliament. As for the rest of the mixed Monarchs, as those of *Poland*, *Denmark*, and *Swedeland*, they do the same, by the same ways, with little or no difference; onely the great Duke or Emperour of *Muscovia*, as he is the neerest neighbour to the Eastern Tyrants forementioned, so he cometh neerest unto them in this kind of Tyrannie especially. As touching the Common-wealths of Christendom, governed in a kind of Aristocratical way, as those of *Venice*, the *Grizons*, and *Switzers*, and some others, more petrie, as that of *Lucca*, *Genoa*, and some of the free Towns in *Germany*; though in the

the means of their raising their Treasures they differ not much from the absolute Princes forementioned, yet can they better enlarge themselves according to their occasions, as being done by a general Consent, and not at the will or pleasure of any One in particular. Hence is it that the United States in the Low-Countries, having been forced by their exigents to nurse themselves up by a War, adventured upon an Addition to all the former Christian courses, by their Taxes upon all sorts of Victuals, called Excises; and hereby fill their Exchequers, and to admiration have maintained a long VVar against a Potent Enemie.

I intend not to enlarge my self farther in this particular of procuring Treasure, as being a work rather appropriated to the States-man then Souldier: onely I shall take liberty to pass a Souldier-like Censure upon them in brief; as, That that of the Tyrants is so insupportable, as it cannot be expected to attend any other opportunitie, then to clear it self by a general Revolt; and therefore must be made good by as general a strength, which must needs exhaust any Treasure, be it never so great,

and make the Poſſeſſors poor, though never ſo rich: That that of the Chriſtian Princes muſt needs be ſubjected to many caſualties; as, to a decreaſe in Cuſtoms by the point of Trading, to the hazards of loſs when imported from the Mines in Foreign Parts, to the diſcontenting of the Subject when upon occaſion they ſhall be never ſo little increaſed and innovated, and to over-tedious and dangerous delays (not to ſpeak farther) when they are to be had by conſent of Parliaments: ſo that the Low-Country way, when (as now with them) it hath gotten a Preſcription by Time, and a Toleration by Cuſtom, ſeemeth preferrable to them all, and eſpecially in regard of the certainty of having them.

As for the preſerving of them when they are gotten, I ſhall onely ſay, that it may be ſureſt done, either by melting them into Bullion or VVedges, and ſo to coin them upon occaſion (as was the practice of the Ancients) or to lend them out for ſome ſmall profit to particular perſons, upon good caution: an eſpecial care being had withal, that the Officers of the Exchequers be men of integritie, choſen rather

rather out of persons of honourable birth and breeding, then of Mechanicks, and men of base condition and qualitie. And thus we have done all we mean to do about the first principal, included under the first Requirable, which is *Munition.*

CHAP. II.

Of Armours of proof. Of Buff-Coats, and quilted Jacks. The length of the Pike. Pikes not to be over-long.

WE shall speak in the next place, and in this second Chapter, of the second Principal contained under the first Requirable, that is, of *Arms*; and first, of Defensive, and those fitted for the bodies of men: touching which, I shall not particularize in the pieces and names, well enough known to every Train-band-man; but only enquire into the use, and when they seem best fitted for service, and for the turn they are provided.

And first of those called Arms of proof. A proof indeed of the degeneration of mens spirits and courage, and wherewith

the wearers become ſo over-charged, and ſhackled, that they ſeem chiefly prepared to fight againſt the ſhock and brunt of their own coats of Steel; and as if bound rather to defend their Arms, then their Arms them.

In which regard (for mine own part) I find no reaſon why they ſhould be in any great requeſt. For ſhould there be found one man of a thouſand ſo well underlaid as to march or ſtand under one of them, yet ſhall he not be able to fight, no not to keep his legs againſt the force of a Muſquet-ſhot within point-blank, or a level Range: for though perhaps it pierce not his thick armour, yet ſhall it ſure enough lay the bearer on his back, there to lie until he find a Comrade or two to ſet him on his feet, or be troden to death with the preaſe of his own ſide. And truly there is but little difference, either in reſpect of aſſiſtance to his Partie, or ſafetie to himſelf, between a mans being killed by a Muſquet-ſhot by the want of his boyſterous Arms, and his being overthrown and tortured to death by having them upon him.

I deny not, but ſuch kind of Arms as are de-

defensible against the Sword, the push of the Pike, and the force of a Pistol-shot, may be usefully born: and I make it a Quere whether this may not be done as well by a good Buff-coat, or at the least, by those quilted Jacks (in my opinion improvidently left off of late) used by our old brave English Archers, as by any iron Armour whatsoever: for these, when they are not pierceable, are not wearable; and when pierceable, make the wound incurable for the most part, by having a piece of the iron of the Armour carried into the body before the bullet. And certainly, (unless we will fall out with most of the Ancients in point of credit) it must be granted, that they had the use of certain linen Arms of excellent proof and use. And *Justus Lipsius* (*lib.* 8. *dial.* 6.) out of *Nicetus* his Chronicle, thus describeth one of them: *Conradus* (saith he) fought without a Target, and in lieu of a Curace, he had a woven weed made of flax, soaked in sowre Wine, well salted withal, and often folded. It was so sure against outward force, being thus fulled, salted, and folded, that it could not be pierced with Iron or Steel. *Plinie* (*Hist. Nat.*

Nat. l.8. c. 48.) also maketh mention of the like. And *Cæsar* (*De Bel. Civ. l. 3.*) hath somewhat to this purpose. And truly it is much to be pitied, that this Invention hath been lost to our age.

The next Weapon Defensive (especially against Horse) is that of the Pike, of which the most considerable is the length. Touching which, it is generally held, that it ought not to be shorter then eight Cubits, which make twelve foot. Some Pikes (among the Ancients) have been found sixteen foot in length: witness *Polyenus* (*lib. 2. in Cleon. Sect. 2.*) where he saith, that *Cleonymus* besieging *Edessa*, and having overthrown the VVall of the City, the Pikemen (saith he) sallied out, whose Pikes were sixteen cubits in length. And it is not to be denied, but that short Pikes are greatly disadvantaged, having to do with such as over-lengthen them: for with a long Pike, a man is able to strike and kill his enemie, and himself not be touched. And hereof *Patricius* (*Parel. part. 2. l. 3. c. 8.*) gives us an example at the battel of *Soravo*, where *Vitellozze Vitelli* discomfited the *Almanes* only with the advantage of Pikes; his (saith the Story) being

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ing an arms length longer then thoſe of the Enemies. And at our being at the Iſland of *Rey*, after the Enemies horſe (at our firſt landing) charging furiouſly French-like, were moſt of them ſlain in the place by our foot, and their Bodie of Pikes came up to the puſh of ours; It was obſerved, that our Pikes were longer then theirs, and this was thought to be one main cauſe of our ſo ſuddain and thorow routing of them.

Nevertheleſs (in my opinion) a conſideration is to be had, that no Pikes be admitted to be over-long, leſt they both exceed the meaſure of his ſtrength and management that is to uſe them, and by their over-length do over-ſway themſelves; and ſo by hanging crooked when they are to be charged, do hinder both the force and certaintie of their ſtroke. I hold therefore, that the proportionable and due length of a Pike may be, when the head of the Pike of the fourth man in the depth of the File, being charged, ſhall ſomewhat advance beyond the face and ſhoulder of the File-leader. And the ordinary length now required in Pikes, being fifteen foot, is well-near anſwerable here-

hereunto. As for the Three-quarter Pikes and Half-Pikes, they are serviceable and proper to be used upon the walls of Towns, and behind Ramparts, Breast-works, and in Trenches; but not so for services against Horse, and in *Campagne*. And thus far concerning the Weapons of Defence, proper for the bodies of Men.

CHAP. III.

Of the places and parts fit for Fortification.

WE are now to give some Advertisements concerning the Defence of Towns: and in the first place, touching the places and parts fit for Fortification.

Now these are to be such by Nature as may be made inexpugnable by Art, or at the least brought to the neareſt term of being so. Of which kindes are Rocks, Islands, Hills, and Necks of Land. But herein it is carefully to be observed, that none of these places be commanded by any external height; or if they be, that the

art be fortified alſo. Obſervation is alſo to be made, that the ſoil of the part be not fondie; for then there can be no repairs either againſt Battery or Sap. Reſpect is likewiſe to be had to the air, that it be wholſom, and eſpecially that the place be well provided with water; and ſo, that it cannot be cut off by the Enemie: That it be in a Country well furniſhed with Victual of all kindes; and withal ſo ſited, that it may ſerve as a Bull-work unto that Country, either by a Guard of a Port, or the Defence of a Paſſage: That it be apt to offend an Enemy on all ſides by Sallies; for ſo it ſhall be apt alſo to be relieved, and cannot be blockt up with any one Port alone: That it be not ſo great as to require over-many men to Man and Defend it; nor ſo little as not of capacity to receive a ſufficiencie of hands to give an impediment to an Enemie in his paſſage: The mean betwixt theſe two, being, when in the Diameter it conſiſteth of three or four hundred paces: and laſtly, That it be in ſuch a part, as that no Siege can be brought before it, but by an Army divided. To which end, the ſituation upon Rivers, and Tongues of Land lying betwixt two

Rivers,

Rivers, are moſt proper and convenie
And theſe are the uſual Advertiſeme
and Obſervations to be made and receiv
in the point of choice of the Place a
Part that is fit for Fortification. Whe
unto I ſhall only add thus much (confir
ed herein by *Gyrolamo Maggi*, (*lib. d*
la Fortif. l. 1. *fol.* 4.) and *Iacomo Caſtrio*
approved Engineers,) that in new parts
be inhabited upon any *terra firma*, or a
large Iſlands, where all Landing-places a
too many to be ſecured by Fortificatio
the moſt uſeful and provident part
raiſe the ſtrongeſt piece upon, is in ſo
Mid-land place, where there is an Inte
tion to ſettle: the which nevertheleſs
to have ſome ſmaller pieces of Fortifi
tion round about it, or near unto it, upo
the moſt likely and obvious Avenues, th
ſo an aſſaulting Enemie may be impedit
in his approaches, as not daring to lea
an Enemy behinde him, whereby he m
be in eminent peril of being cut off fro
all manner of ſupplies, and may expect
receive continnal moleſtation by thoſe
the Forts left behind him; and likewi
the Inhabitants may finde means not one
to ſhelter themſelves in their perſons, b

to ſave their goods and cattle within and under the command of this Fort thus ſituated.

CHAP. IV.

The perfection of Works due to Fortification, in the point of a Bulwork and its parts, and in the point of the Curtains and its defences.

THe part proper for Fortification being thus found, ſome Caveats are to be received touching the perfecting of the works. And theſe are, that an eſpecial care be taken, that the Bull-works be not hollow, and that the *Piazza* or Plain thereof be raiſed equal with the Rampart to the foot of the Parapet: And that there be no Vault nor Caſemate that may give Impediment to the play of the great Guns, either by blindings with ſmoak, or any other way: That no Angle of a Bulwork be over-ſmall, leſt it prove eaſie to be battered; nor over-large, leſt the point with a ſmall battery be hidden from the flank; That every Bull-work have his Coun-

Counter-mine; the which, though some think (by way of saving of charge) may be timely enough done when an Enemy begins to make his Approaches, yet for my part I cannot approve of so thrifty a presumption: That every Bull-work have two Sally-Ports as secretly contrived as may be; to which end, the Angle of the ears of the Bull-work is the most proper part: That every Flank regard the face of the opposite Bull-work, that so the Enemy may be dislodged from Mining the Rampart: That the Angle of the Flank be a right Angle; because an obtuse Angle layeth the Cannoniers or Port-holes over-open, and a sharp Angle disordereth the Face of the *Piazza* of the Bull-work, and of the ears thereof: That there be in every Flank, one piece of Ordnance at the least, so secured, as that it may serve for a constant defence for the opposite Bull-work: That the Port-holes next to the Angles of the Curtain, lie as little discover'd as possibly may be; provided nevertheless, that they regard and scour the ditch and the covered way, or false Bray, with some part of the circumjacent *Campagnia*: That the defence of the Face of

every

every Bulwork be taken out of half of the Curtain, and ſo be made, that it may be re-guarded by the Flank, thereby prohibiting an Enemie to Mine; the which cannot be done if the defence ſhould be taken from the Angle of the Flank, as of old: That the diſtance from the Angle of the Flank to the point of the oppoſite Bulwork, be not above two hundred paces (within which diſtance the great Guns may work their effects) nor fewer then one hundred and fiftie; that ſo the Defendants guarding in the Flank, may not be offended by the Enemies Muſquetiers from the point of the Counterſcarp: That the Ports be made in the midſt of the Curtains, and not of the Flanks nor Ears, which otherwiſe might be weakned by them: That no part be diſcovered from the *Spalto* or ſhoulder; ſo ſhall it not be ſubject to batteries, or at the leaſt not to the ſame batterie of the Point or Flank: That the Curtains between the Bulworks be drawn in a right line: That no Bridge lead directly to any part of the Work, that ſo the uſe of Petards may be fruſtrated; and this alſo may be done by Draw-bridges: That the whole Work

command round every way, over all the plain where it is erected.

And these are the material and principal observations and advertisements due to Works of Fortification, when new ones are to be raised, and the choice of the place to be had at pleasure.

CHAP. V.

Of defective pieces of Fortification. Of the Forms of Works: the Triangular the worst Form.

WE are in the next place to make some advertisements touching such pieces of Fortification as are defective, either in respect of Form, or otherwise: and all such are so to be held, which participate not of the correspondence and defence which they should borrow one of another.

Now this mal-correspondence may be reformed, by giving to the parts of the same denomination, equal proportion in heighth, breadth, length and declination, if the situation will possibly permit. And

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the defences are ſecured and amended by increaſing of the points of the Bulworks to ſuch a moderation, as that they be not carried to the prohibited terms of ſharpneſs; the which for all that, ſerves not for the reformation of all old Works, but onely for ſuch as are regular.

As for the irregular (beſides the reformations of particular members) it will be needful to build ſome new and entire bodies of Fortification. The truth is, that in the reforming of the ſubſtance and main of old Works, more labour is to be uſed then skill; for herein it is onely neceſſary to fill the Bulwork, if it be hollow; to increaſe the thickneſs of the Curtains and Parapets, if they be not ſufficient to reſiſt a Batterie; to make the ditches deeper, broader or narrower, as cauſe ſhall require; to cut a Counter-ſcarp with his Ravelins and Flankers round about; to advance the *Spalto*, or ſhoulder, if it be over-low, to the heigh of the *Cordone*; to increaſe or diminiſh the ſcarp, as need ſhall require: and laſtly, to repair the *Camiſcia* if it be ruinous.

As for ſuch Fortreſſes as are ſited on Sandie Grounds, being in themſelves al-

together without remedy againſt battery or ſap, the natural defect is to be ſupplied by an Artificial *Camiſcia* of wood, made with ſuch proportion of Scarp and thickneſs, as that it cannot be ruined but by much time and great labour. And when the Curtains are exceſſively long, and thereby defective, the Redreſs may be either by a Cavalier or a Platform, or by ſetting the Flanks the nearer one unto another. But the beſt way is to make two Curtains of one, and to raiſe a new Bulwork in the midſt between them. And the *Spalla* may be perfected by either the ſame, with a new *Camiſcia*, or by retiring the Curtain farther into the Fortreſs. As for the defects of the *Gola* of a Bulwork, they are not to be reformed and made wider, but by removing of the Spallaes ſo much as is needful, towards them of the oppoſite Bulwork.

As for the Forms of Works of Fortification, the Triangular and Square ones are juſtly the moſt imperfect of all others, by reaſon that the Bulworks muſt of force become over-ſharp in the points (and eſpecially in the Triangular Form) whereby they are eaſily battered in that part

to

to the extream danger of the whole Piece; by reaſon that the Enemie cannot be offended from thoſe parts, but may ſafely come to the aſſault, without being endangered in Flank: and beſides, if the Parapet chance to be beaten down by the ſtreightneſs of the ſite cauſed by an acute Angle, all place is abſolutely taken away for a retreat, and no room left to erect another in its ſtead, either with Gabions or Trenches. In theſe reſpects it may therefore be concluded, that the beſt Forms of Fortified Towns, are thoſe which conſiſt of moſt ſides, as neareſt approaching to the circular Form, which is the moſt capable of all others, and by conſequent can afford the more commodities for the accommodation of ſtrong and ample Bulworks, and have the Angles more obtuſe. And the Streets likewiſe may the better be direct and ſtrait, which is a main matter towards the defence of a Town of War; by reaſon that they may be the better traverſed with Trenches and Barricadoes upon all occaſions. And thus much touching the Works due unto a Fort, and a fortified Town, both regular and irregular. It remaineth to ſay ſomewhat of the

Ports; the which shall take up the Chapter following.

CHAP. VI.

The best Forms for Ports. The part where the Ports are to be made.

TOuching the Ports of a Town of War (not to speak any thing of the Antique ones, justly despicable) the general modern rule is, That the extremities or points of these Works be not extended or thrust out any way beyond those of the Curtains, lest by their interposition, they hinder the operation of the Artillery, and so frustrate the defence of them: And that these Ports are to be raised so near unto the Bulworks, that from them they may be defended by Musquet-shot.

As for the part where these Ports are to be made, the famous Engineer *San-Martin* propoundeth it to be upon the Curtain; their largeness to consist of six Braces, their height of nine: and that near unto each Port, is to be a Postern cut out of the Curtain, in breadth one Brace and

and an half before, and three behind: and that the Counter-port should be of five Braces in bredth, and eight in heighth; and between the two Ports, he would have left the covered *Piazza*, or Plain, or Passage, to be in bredth one Brace, and in length thirty two; having withal two places so framed, as from them to give fire on each side upon the first Gate: and on each side of this passage to be three square Rooms below, of eight Braces on a side, wherein to lodge the Souldiers of the Guard; and as many above, directly over them, to be passed up into by two Ladders or Stairs; the one Stair on the one side, and the other on the other, upon those sides of them which lie within, and towards the Town and the Guard thereof: and so the whole piece become a perfect Square, upon the flat top of which, he would have a Cavalier to be raised, to be passed up unto by two other pair of Stairs in the Flanks towards the Curtains.

Thus propoundeth the great Engineer, *San-Martin* or *San Mariano*. Nevertheless, if the heighth of these Works be advisedly considered by this prescription, I see not (howsoever the Front may make

a gallant Prospect) but it must needs carry with it very much of peril, and lie open to a Batterie, by reason of the heighth. And therefore I am of opinion, that these Ports with their seconds, are not to be made upon the very Curtains themselves, but somewhat within them; and so to make a kind of Ear or Pome unto it, the which may so stand out before the Port, as to hinder the Enemie from beating upon it with his Guns, and withal offend such of the Enemie as shall approach behind the shoulder: and likewise it shall hereby play very freely upon that side of the Bulwork which is next unto it, and upon the bosom or bowing of the foresaid Ear, Pome, or Guard of the shoulder that flankers it.

True it is, that the way or passage which leadeth from the Port into the Town, is to be (for a good way) somewhat extraordinary large, and withal with such a bending, that two pieces of Batterie, at the least, may directly and fully beat upon the Port it self: to which end all the whole passage is to be kept clear from all impediments of houses, or any thing else that may hinder the play of these Ordnance.

CHAP.

CHAP. VII.

Of Forts or Citadels within Towns. The beſt Forms of theſe Forts. Of the Cavaliers within theſe Forts.

FRom theſe Ports we have occaſion to obſerve ſomewhat touching ſuch Forts and Citadels as anciently, and in many places to this day, are raiſed and maintained in ſome Towns of War; and ſerve as well to defend the place againſt an aſſaulting Enemy, as to hold the Town it ſelf in awe and order.

Now to this purpoſe, the antique uſe was to ſeat the Citadels in the midſt of the Town, upon ſome high and elevated part: and if none ſuch was there to be found, then to raiſe them in any other part, beſt tending that way.

The more modern practice hath been, and is, to erect theſe Citadels in ſuch a poſture, and in ſuch a part, that the one half of them might be within the Walls of the Town, the other half without, as the ſituation would bear. And this was principally done, that ſupplies might be brought

brought in or out unto the Citadel, without being in danger to be hindred by the Town, if it ſhould happen to be impatronized either by Rebels or by an Enemie. But this way hath not paſſed without reproof, becauſe the part without the Wall may be ſo ruined either by Battery or Mine, that the part within ſhall not be able to put into it any ſufficient ſupplies.

It's my opinion therefore that Citadels within Towns of War are moſt properly ſited, when they ſtand upon the moſt eminent and elevated part, and if it may be, upon the very Walls of the Town, and ſo ſerve in the nature of a Bulwork alſo, to guard and flanker the Curtains of the Wall on each ſide; but yet ſo, as not to be offended by the over-vicinity of any of the Bulworks; and that they be contrived with one or more ſecret Poſterns, or private and cloſe Avenues, that Munition and Men may at all times be conveyed into them; and that every way they have a full command upon the Town wherein they ſtand, and be able eſpecially to beat upon ſuch parts thereof as are moſt frequented, and eſpecially the Market-place and

and Ports; so that if the Town should chance to be surprised by an Enemie, or turn Rebel, it may not onely be battered by the Fort, but the parts thereof disarmed, and means and commoditie afforded for the receipt of all such supplies as may be intended for the regaining of the Town.

As for the Forms of these Citadels, howsoever the Triangular and Quadrate Forms are disapprovable in Royal Forts (as formerly was noted) yet in these, in regard they are generally but small, they may be allowed to consist of four sides, and indeed not of above five: yet is their circuits not to be so little, but that there may be a sufficiencie of Retreat upon all occasions: for otherwise they may suffer much. As for their Walls, Curtains, and Bulworks, they ought to be (in my judgment) somewhat larger, and their ditches deeper then those of the Town, as sustaining the greater charge, and undergoing the more of danger.

It is also very necessary, that within these Citadels, Mounts or Cavaliers, be raised in the midst of them, not of stone (for these may not onely be easily ruined by

by an Enemie Counter-battery, but will al prove dangerous to the defendants Guard near at hand,) but of good earth the top of which is to be circled with Ga bions, or solid entrenchments. And thu may the Territory and Champain roun about be commanded with the Ordnanc mounted upon them, and the Enemie b disabled from making his approaches bu with much moleſtation and danger.

As for the way to furniſh theſe Citt dels with water, it muſt be done b Wells or Ciſterns, or both, in convenien places. And for their Arms, Victuals, an Powder, Caves and well-ſecured part muſt be framed, wherein to ſtore them and eſpecially for their Powder, that i may be ſo diſtributed and repartited, tha it be not either by chance or treacher fired all at once. But of this more ſha be preſcribed in another place. Now the benefit and aſſiſtance that have been found by theſe kind of Citadels, was evi-denced in that of the *Campi doglio* at *Rome*, which recovered that Citie from the *Gauls*: In that of *Tarento*, which held out five years after the taking of the Town, and was the means of reducing it.

And

and of late in an Action of our own in the journey to the Iſland of *Rey*, where the Citadel of the Town of S. *Martins*, though it lay without the Town, becauſe the Town was unwalled) after we had been poſſeſſed of the Town and whole Iſland, for three months ſpace, by its holding out againſt us, put us to a Retreat, with the loſs of our coſt and labour, and the lives of ſome of our beſt men.

CHAP. VIII.

The beſt matter whereof to build Forts. How to be wrought where there is ſand.

AS for the ſubſtance and matter whereof the Works of this Nature are to be made and to ſubſiſt, it is earth; and of earth, the perfect clay is the beſt. And yet when this is to be had, proviſion is withal to be made of ſtore of bruſh and fagots. Of which, in raiſing the Baſtions or Scarps, one fagot is to be laid in every three foot of ground, and ſo thoroughout the whole Work: only the Front of the Work is to be made up with good Turf, with

with the Green side outwards, and to be well lined with brush and fagots, with good mold thrown both upon them and in to them; the which will not onely make it firm, but comely. And where none of this prime earth is to be had, but that onely of the middle sort, which is part of firm clay, and part of sand; then ought there to be provided the greater store of this brush and fagots, and mud, or the like stuff, to be thrown into the Fagots, and a fagot to be put between every two Turffs of earth.

But where nothing is to be gotten but meer sand onely (which is the worst of all sorts of earth,) a very great abundance of brush and fagots are to be had in readiness; and the most firm and stable Turff is to be fetched elsewhere, and to be proportioned into eight Spans in largeness, and sixteen in length. And the rows of Turff are to be doubled the one upon the other, and with great Pins or Dibbles of strong wood, each of them of two foot in length, to be pinned and fastned together. And every course of two Turffs are thus to be pinned; putting withal into every course a sufficient store of fagots filled with sand: and

in

n the face of all, ſome of the beſt earth is gain to be laid to the thickneſs of four pans, that ſo this earth may be ſcarped y little and little, to cauſe the VVork to hew fair; two Scarps being to be made etween every five foot of ground, always ingling withal, within and near unto the im earth, ſome Straw, or Mud, or the like tuff.

And indeed theſe fagots or bruſh, are the oſt principal materials, as well for de-ence in Cities, as in all approaches upon hem: neither, to ſay truth, can any de-ences at all be ſuddenly raiſed by any eans without them, nor any half Moons, r the like; ſo that it may well be ſaid, *Want Fagots, want Defences.*

And this is evidenced in no part more, hen in the Low-Country-VVars, where oſt of their deſigns reflect upon the ta-ing and keeping of ſtrong Towns, and here all, both defences and approaches re chiefly made up with theſe fagots: witneſs above all others, the laſt famous iege of the *Borſe*, where the expence in theſe kinds alone, was on the Aſſailants part infinite great, and the effects no leſs dmirable.

CHAP.

CHAP. IX.

Of Guns in a Town of War: Where to be placed.

HAving gone thus far in the point of Forts and Fortifyings of Towns of VVar, we are to give some advertisements about the Artillery and Guns belonging and due unto them.

It is the general opinion, that in a Town of VVar of the true size, which (as before said) is to be in the diameter betwixt three and four hundred paces, there are not to be fewer then sixty pieces of Ordnance, which are thus qualified: Of Cannons twelve, shooting forty pounds of iron, which are to be imployed in Counter-Batteries. Of Demy-cannons eighteen shooting twenty four pounds of iron, for the defeat of the Enemies defences and trenches. Of those called by the French Quarts du Cannons, shooting ten pounds of iron, wherewith to offend the Enemie in his approaches, and to endanger his Sentinels and Out-watches. Of Field-pieces twenty, shooting five pounds of

iron

iron, or seven and a half of lead; to be imployed not onely upon the Walls and Ramparts, but upon the entries of Breaches: and besides all these, three Morter-pieces at the least, for the throwing of Granadoes and Fire-works into the Enemies Trenches, and to give light in the night-time, for discoverie of the Enemies Works.

These are the Repartitions of the great Guns, accounted requisite for the defence of a well-fortified Town: wherein I shall onely advise to change the twelve whole Cannons for so many half ones. And my reasons are, first, because they are more manageable: secondly, in that they may the oftner, and with more ease, be charged, discharged, and recharged: thirdly, in regard that they do not over-shake their Walls and Works, as Cannons do: and lastly, in that they exact not so many hands to manage them, nor require so great expence of Powder as the other.

As for the parts and particular places where these great Guns are to be lodged, and especially during the time of a Siege; the Rules are, that if the Enemie plant his Batteries against the Curtains of the

VVall, the Guns in the Town are to be mounted upon the Bulworks next unto that Curtain where the Enemie batters: lodging withall some few Pieces upon the inmost brink of the ditch which flankers with the breach. But in this point, especiall care is to be taken, that these Pieces, as well on the Bastion as Ditch, be never suffered to play, save when the Enemie presents himself in multitudes to force the breach, that so they may lie undiscovered.

But if the Enemie batters upon the Bulworks, then the neck of the Bastion is to be cut and retrenched; and within this retrenchment some great Guns are to be laid, and with good shoulders to be well covered and shadowed, until the Enemie adventures to force the breach, and then to be thorowly imployed on the sudden. And this retrenchment may also be used in defence of the Curtains, if there be a void place for the making of a half Moon, or the like piece of VVork. And thus are the great Guns to be lodged and imployed in a well-fortified Town of VVar.

CHAP.

CHAP. X.

Of the Out-works requisite to a Town of War. Of the Ditch, the Ravelins, Horn-work, Counter-Scarp, Half Moons.

HAving thus far discoursed of the inward VVorks of a Town of VVar, we shall now advertise somewhat also of the Out-works.

And first of the Moat or Ditch, which lieth the next without the Town-VVall; and is sometimes in some places without water, sometimes filled with water; and again, sometimes filled with a standing water, sometimes with a current.

Now of these particulars, as also of the breadth of the Ditch, some disputes have been which should be the best. Of which (as affecting brevity) I shall onely say, That the drie Ditch may be fittest in respect of the VVorks that may be made in it; and the wet, in regard of retarding and troubling of an Enemie, and forcing of him to fill it up, or to lay Galleries over it.

The second Out-work without the

VValls, a[illegible]e Ravelins; and these generally are cut out triangle-wise, and are raised for the most part, in the middle of the Ditch, and serve as well to defend and scowre the Ditch, as also in the nature of Casemates.

The third VVork without-dores, is that called the Counter-Scarp; and it is a kinde of Brest-work, cut enclining by little and little downwards, and sited on the outmost shore or side of the Ditch: and it serves for the safety of Musquetiers.

The fourth VVork of this nature, is termed a Horn-work; and it is contrived to secure and scowre the Curtains of the Counter-Scarp. And it takes the name, by having their corners of the Fronts shaped like a Fork, or two Horns joyned together.

Last of all, before these Horn-works are again cut out certain places of a safe Retreat, called Half Moons; and these are also fortified with a Counter-Scarp about one Cubit in heighth. And into these Half Moons are passages cut out for the Souldiers to go from the Front of the Horn-work behinde them, over little Draw-bridges thrown over their Ditches.

And

And theſe are the chief and prime of all thoſe Pieces termed Out-works; which, to ſpeak truly, are rather the Repairs and Succours of faultie Pieces of Fortification, then any true ones themſelves. Touching all which in general, an eſpecial care is to be had, that both the outward and inward VVorks of a true fortified place, be ſo contrived, and ſo correſpond one to another, that ſome of them lying higher then others, and others again in an equal heighth, they may with the more ſurety defend each other from the Flanks, and from above: ſo that from the outmoſt to the next to it, and from thence to the reſt, there may be a ſafe retreat for the Defendants upon all occaſions.

CHAP. XI.

Ways of Defence, by Protraction, Fruſtration. Batteries, Mines, Aſſaults, how to make void. Defence of Towns by way of Sallies. How to carry off a Gariſon out of a Sea-Town.

WE ſhall now propound ſome courſes of defence by way of Protraction, and others by way of Fruſtration; whereby a beſieged place may haply preſerve it ſelf againſt expugnation.

Now the courſes by Protraction, are either by the raiſing of ſome ſmall Forts, or by Counter-approaches, or Sallies. The Forts to this purpoſe are to be raiſed within Muſquet-ſhot of the Town, whoſe Pitches are to be emboqued from the Flanks of the Bulwork, or at the leaſt from ſome part of the Curtain, from which alſo the platforms of the Forts are to be wholly diſcovered; that if the Enemy ſhould gain them, he may as ſuddenly be beaten out, and diſabled from maintaining them. The Counter-approaches are to be emboqued from the Flanks, and to begin at the

the Counter-Scarp, and so to be carried towards the Enemies approaches. And the use of these are, both to delay the Enemie in his approaches, and to lodge Souldiers in; from whence they may aid the Defendants in their Sallies. And the one part of the earth taken out of these Counter-approaches, is to be cast up towards the Enemies VVorks; and the rest to be carried into the Town for Munition-earth.

As for Sallies, whensoever they are to be practised by night, a sure course is to be taken that intelligence be gotten how the Enemie is lodged, that they may be brought on accordingly: if they be to be made by day, it must always be done upon a sure advantage, and a strict injunction that they pass not beyond the distances of a Reserve to be given them by the shot of the Town. And thus by these Sallies discreetly made, the carrying of Galleries and Traverses intended by the Enemie, may be hindred from being brought over the Ditch. And the like may also be done by Counter-mines, if the Ditch be drie; and by throwing into it combustible matter, as Fire-works, and the like. And if

the Ditch be wet, provision must be made of Boats and Floats, for the better conduction of these Sallies whensoever they are made. And these are the courses of Protraction.

Those of Frustration, are performed either by making void the Enemies Batteries; or his Mines, or his Assaults.

His Batteries may be made void either by a Counter-batterie, which may dismount his Guns, spoil their Carriages, or ruine their Gabions: Or by a repair of the breaches made by the Enemies Cannon; to which end, store of Timber, Pales, Faggots, Hurdles, and Munition-earth, are to be provided: Or by carrying the earth into the Town which falleth from the Batterie, that it remain not either in the Ditch, or increase the Scarp.

The Enemies Mines may be frustrated, either by Counter-mines, or by Batteries from the opposite Flank, or by wetting of the Powder in the bed of the Mine, or by giving vent unto the Mine. And either of these may be done when the place of the Mine is discovered; and it may be discovered by the use of a long Piercer, such as are commonly used in the proving

ying and search after Coal-mines.

The Enemies Assaults (though they cannot be absolutely restrained) yet may be sustained either by the Cannon securing in Flank, and fully re-guarding the breach, being continually well plyed during the whole time of the assault; or by a Counter-Mure, whose platform ought to be streight, and the Flanks so contrived that one may not endamage the other: Or by Mines as well in the ditch as platform of the Counter-Mure, and which may be covered with boards full of nails: Or by continual throwing of Granadoes, Stones, Timber, artificial fires, and the like combustible matter.

And if any place of strength, as Town or Fort, shall happen to be so assaulted and stormed, as that neither hope of any inward defence remains, nor hope of Quarter; in this desperate condition, if a Sally be made out of divers Ports at once, and that unexpectedly and thorowly brought on, and well followed; it hath been found not onely to mitigate the heat and violence of the assault, and controul the fury of the Enemy, the better to obtain reasonable and Souldier-like conditions and

Quar-

Quarter; but also quite to alter the face of the day, and absolutely to occasion the quitting of the Siege.

And hereof we have a punctual example from *Cæsar* in his Commentaries, where *Sergius Galba* (being sent to make good a certain passage of the *Alps*, and to that purpose resolving to winter in the part) was suddenly besieged, and assaulted in his standing Camp, by the native inhabitants; and being so over-pressed with multitude, that no hope of longer defence remained, by the advice of *Caius Volusenus*, the beseged *Romans* brake out thorow all the gates of the assaulted Camp, on such a sudden, and with such a courage and alacrity, that they gave the assailing Enemy no leisure to consider of what was done, nor to satisfie their judgments and apprehensions upon so unexpected a motion: so that the face of all things being suddenly changed, the *Romans* (saith the Story) found the means to slay more then the third part of thirty thousand men, and absolutely routed all the rest. And if a Garrison or Army being besieged in a Haven-Town, the Port being open to Seaward, shall be so forced upon by an over-

potent

potent Enemy, as that the place must needs be forsaken; the safest course to do this, consisteth in some Works to be made within the Town: and these Works may be of three sorts; either by Muring and Barricadoing up the Entrances and ends of the Streets and Lanes which might give access to the Enemie; or by sinking some Ditches or Trenches cross those ways and passages, which may also be stuck full of sharp stakes and calthrops, covered and shadowed over with light and thin hurdles, that the assailing Enemie may not heed them; or to hedge in all such Avenues as lead unto the Port, with a strong *Pallizado*.

As for the course of conveyance of the Souldiers out of the Town to Ship-board, it must be carried with as little shew of fear as may be; and by the stay and shewing of some of the lightest armed men here and there upon the Walls and Bulworks, to make a semblance of a longer holding out of the place; and that the Enemie may take no notice of the least intention of a retreat. And these last reserve of men, are to be called off upon the giving of a word, after the rest of the army are embarqued, without noise or tumult. And

And of this also we find a president during the Civil VVars between *Cæsar* and *Pompey*, who being besieged by *Cæsar* in *Brundisium*, punctually practised this course, and safely shipped all the remainder of his forces into *Greece*, where most of his Legions were before. And this he did without loss or trouble, although *Cæsar* did his best to prevent it.

And surely had we done the like at the Isle of *Rey*, and in this manner shipped our men at the Town of St. *Martins*, and not marched over into the small Island of *Loix* by Land, in all likelyhood we had escaped that blow, and had come more fairly off in that our unluckie descent.

CHAP.

CHAP. XII.

Of the expugnation of Forts: how by an Escalade, either in the night or day. The Bridges for an Escalade, how ordered. Of Surprizes by the use of Petards. Of approaches upon a besieged Town. Of Galleries used in Sieges, Batteries, how to be made and preserved.

AND thus having spoken somewhat of all the ways and practices Defensive in a VVar, we shall now do the same touching the courses of Offence.

And first of all, this ought to be received as a Maxime, that whosoever intendeth to expugn any place whatsoever, is to be at that present, in that part, Master of the Field: he ought also to be well informed of the situation, strength and provisions of all kindes, wherewith the place he means to besiege is furnished. As in particular, with what kindes of Ordinance, and how many; with what quantitie of Provisions, as well for defence as in point of Victual. A true and perfect designation is likewise to be procured of the VValls, Fortifications,

ons, Bulwarks, and Bastions; of the strong-
est and weakest parts of the place, as also
of the most Minable and Unminable parts.
And if he aim to attempt it by surprize,
that it be resolved with judgment, and ex-
cuted with diligence and resolution: and
in particular, if by way of Escalade or
Scaling, either by day or night, that per-
fect information be gotten of the quality
of the Ditch; as, whether it be filled with
a standing water, or a currant; whether
it have a Counter-Scarp or not, on the in-
nermost side. If it have a Counter-Scarp,
and the water in the Ditch be a current,
the course by way of an Escalade may be
by the provision of a dozen of light brid-
ges made with two poles of Pine, or some
other light wood, to the length of fifteen
or twenty foot, and the thickness of a
mans thigh; upon which poles, traverse
pieces of planks are to be fastned a foot
wide asunder, Ladderwise, and to be in
largeness about three foot. At the ends
of which Ladder or Bridge, as well before
as behind, two strong cords are to be fast-
ned; that by them, when the Bridges or
Ladders are thrown over the water of the
Ditch, they may be drawn back at
pleasure. These

These Bridges thus fitted, may each of them be carried by six men: and being brought to the side of the Ditch, and set down upon the water, four or six Souldiers are to bestow themselves upon each Bridge, sustaining themselves upon their Pikes, and so to pass over the Moat. These men being thus gotten over, they are to thrust back the Bridges, holding the ends of the cords which are next unto them, and giving room and a length of cord for the Bridges to pass over, that so they may reach to the other outward side. The which being done, four or five Souldiers more are (as formerly) to pass upon each Bridge; and those Souldiers that were first over, are to draw these Bridges up unto them. And thus to continue doing, until there be so many Souldiers past over as the place is capable to receive, or shall be held sufficient to carry the Town.

This being done, these Bridges are to be drawn up out of the Ditch by the Souldiers that have passed over, and are to serve in the nature of Ladders for the scaling of the Wall. And because they may perchance prove too short for the height of the Wall, it is a necessary providence

vidence to have for every one of t
bridges a ſmaller Ladder, not fully
broad as the Bridge-ladders themſel
the which may be enchaſed and made
unto them by their ſteps, and ſo the wa
of height in the bridges ſupplied.

It is good providence alſo to provi
ſome Ladders of cords with ſtrong hoo
of iron at their ends; the which hooks
throwing, are to be latched to the top
the Wall.

But theſe are not ſo much to be truſt
upon, as the former Ladders, in rega
that they may be often thrown up, befo
they faſten. And theſe are the moſt pr
bable and ſecure courſes to be practiſed
Eſcalades. Many others there are
this nature, which are to be varied, acco
ding to occaſion and opportunity, to th
purpoſe.

But if a Surprize be intended by the m
of a Petard, one approved courſe may b
by faſtning the Petard to the end of th
Maſt of a ſhip, much after the ſame ma
ner that ſmall barrels of Guns are laid i
to ſtocks of wood. At the other end
which Maſt is to be hung a weight cou
terpoiſing the Petard, that ſo it may
direct

directed and moved in a ſtraight line. And in the midſt of the Maſt are certain wheels to be faſtned, equal to the wheels of the Carriage of a Cannon. Behinde theſe wheels, when the Petard is brought to the part where it is to do execution, impediments are to be laid to prevent all reverſe. And it is to be brought up as cloſe to the place where it is to work, as poſſibly may be. And againſt the time of giving fire to the Petard, proviſion muſt be made of a Draw-bridge, to ſupply the place of a Draw-bridge belonging to the Town that is to be attempted, if it ſhould be broken down, or drawn up.

And thus much onely touching ſuch attempts as are to be made upon a Town of War, by way of Surpriſe. But if this be to be done by encampings, obſervation is to be made, that the Army be lodged and entrenched with ſuch judgment, that the Quarters on all ſides, and at all times, ſecure and ſecond one another; and withall be ſo well united, that they may both repel the Enemie in *Campagnia* (if he ſhall offer to fall on that way) and to maintain themſelves withal againſt the beſieged Town. As for the approaches upon the

Town it self they are to be begun some-
what beyond the distance of Musque-
shot from the Towns Wall (except the si-
tuation of the place afford other advan-
tage) and from thence are to be carryed
forwards to the Ditch, and then thereo
the Ditch to the face of the Bulwork
and rather to the Bulwork then the Cur-
tains, (especially if the besieged Town b
any thing large) because the Curtains ar
guarded with more then one Flanker
whereas the Bulwork is onely with one.

And in the making of these approaches
these particulars that follow are alwa
to be observed. First, That all the ear
taken out of the Trenches be thrown to
wards the Town besieged. Secondly
That these Trenches lie not open to a
part of the Town, either in Front
Flank. And this to be done by carryi
on the Lines of the approaches fully wit
out the points of the Bulwork tow
which it is to be approached; and with
by making them deep below the line
six foot, and not broader in the bott
then to twenty foot. Thirdly, That
these approaches flank one another
which is done by making of many Tre

ches

ches (*alle Forbici*) every one of them being to be to the length of thirty or forty paces. Fourthly, That every Trench be provided with some small Works for the lodging of a *Corps de Gard*; and these are to be cast up at the ends and mid-parts of the Trenches. Fifthly, That at the head of every approach, a small Fort be contrived capable to lodge so many Souldiers as may repulse any Sally. Sixthly, That the Angles of the Trenches be deeper then the rest of them, so to preserve them from being discovered from any part of the Town. Seventhly, That the cutting into the Counter-Scarp be under ground, and not directly embocqued with any part of the Wall. Eighthly, That those approaches which be carried thorow the Ditch to the Wall, be made of matter incombustible; and withal be of force to resist any batterie from the Flank which regardeth them. And this is to be done by Traveries if the Ditch be dine, and by Galleries if it be wet.

And these Galleries are to be reduced into members or parts, that so the more easily they may be carried from place to place; and to be rejoyned when they are

to be used; and then to be covered wi
fagots and earth, or with mats made a
kept wet, that the Enemie may not end
ger them by Fire-works. And these Gal
ries may be larger or lesser, as cause re
quires, carrying the heighth of nine fe
and the bredth of six: though true it
that the larger they are, the better th
are, as admitting a freer passage for me
be they either Souldiers or Pioneers.

Now whilst these approaches are th
in action, Batteries are to be raised a
planted: to perfect which, respect is to
had of their security, their execution, th
form, and the expedition. Batteries m
be secured against the shot from the To
by Gabions, seven foot high and six fo
broad, filled with solid earth well trodde
and against Sallies, by Trenches well f
nished with Souldiers to repel the Enem
Batteries may prove defective in th
execution, both by being over-remo
and by the manner of mounting of t
Guns. The distance therefore from
part to be beaten upon, is not to be abo
two hundred paces, nor nearer then
hundred: for when they are within
one, or without the other, the ball fole

of its best force. As for the forms of Batteries, the Guns are best mounted when they may stand parallel with the Batterie: because when they are under the horizon, the ball affecteth its natural repose; when above, it suffereth violence. As for the form of the body of the Batterie, the most proper is that of a half Moon; preferable to all others, in regard that it discovers wider, flanketh better, and requireth fewer Gabions then any other form. Touching expedition in point of a dispatch, the surest course is, for the Master or General of the Artillery to make use of a sufficient number of Canneneers for the attending upon the Batterie: and the Work it self is much forwarded by a Trench cast ten foot before the front of the Batterie, where the Souldiers may be lodged and shrowded from the Enemie; and withal it will serve for the traverie of the Guns.

But all this, though never so throughly observed, proves defective in the particular of making an assaultable breach, without the use of Mines or Mining: for though the use of Mines at the first coming up of great Guns, was for a time ne-

glected: yet hath the practice of the
been revived, by reason of the perfectio
of modern fortification; the which
ocular demonstration hath evidenced
that Artillery is not otherwise profitab
for expugnation, then onely to take aw
Defences. And therefore in this ensuin
Chapter we shall advertise somewhat
them.

CHAP. XIII.

*Mines, how to be made and used. How
longe the Powder in Mines.*

IN the use of a Mine there is nothin
more to be suspected, nor more per
lous then a Counter-mine from the En
mie; to avoid which, the way whereby
may be done, is to be declined, either
the one side or other, as occasion and
fite of the place will suffer.

A Mine therefore is not to be carrie
in a right line, but courbed and crooke
And the sides thereof are in many plac
to be bored with long and fit Piercers
iron, that so the Enemies Counter-minin
may

may be heard; which cannot be so closely nor secretly wrought upon: but by this means may be discovered and heard. In the carrying likewise of a well-contrived Mine, an especial care is to be taken against the sinking and falling down of the earth from above, whereby the Miners may be buried: to prevent which it is to be well fourred or underpropped with pieces or pillars of Timber, seven foot high if the earth will bear it: and the breadth of the Mine is to be five foot, sided with planks and roofed with boards. And if the ground be found over-moist, and floted with springs of water, it is also to be floored with boards, leaving a small Trench for the water to pass away, or digging some small wells to the same intent.

The Mine being thus, and in this manner conducted to the designated part, where it is to do execution; a bed or chamber is to be framed for the receipt of the powder: the which being lodged in it to a sufficiencie, is to be very carefully closed up, that no air may enter, save only at that small hole through which the train of Powder is to pass into the chamber or bed of the Mine, whereby the whole mass

of Powder may be fired at the time when it is to do execution. And it is to be observed, that the nearer the paſſage or the low-fare of the Mine approacheth to the Chamber, the narrower it ought to be: ſo that though at the mouth of the Mine it may be ſeven foot high and five foot broad; and at the half way, five foot high and four foot broad; yet at the very chamber it ought not to be larger then onely for the entrance of the barrels of Powder to be put in one after another. But above all things, an eſpecial care is to be had by the Conductor of the Mine that before he begin his work, he be very attentive and diligent in taking the exact diſtance that is to be between the beginning of it, and the end; with the preciſe conſideration of all its winding and traverſes, that ſo he may be ſure of the right placing of the bed of the Mine, under the part upon which it is to do execution: leſt otherwiſe, not onely the whole labour and coſt be loſt, but prove prejudicial to his own partie. To which end alſo, the declination or ſloping of the chamber or bed, is to be made parallel to the Scarp of the Wall: for if it decline either more or

leſs

then the Scarp, it will there break forth because it shall there finde the least resistance; and so in stead of an assaultable breach, make only a small hole in the Rampart. And thus far touching the conduction of Mines, and the firing of them.

CHAP. XIV.

Of Breaches, and the Assault. How the Ditch is to be passed over.

THe Mine being thus fitted and fired, (before any assault be offered or attempted) the breach is to be viewed, and judged whether it be assaultable or no, and all the Defences are to be taken away, both in Front and Flank. And this is to be done by planting the Cannons in such a manner, that they may thorowly discover them, and hereby the Assailants put upon the breach with the better security and hope of success, as well in respect of themselves, as of their Seconds and Thirds, if need be.

As for the ordering of the Souldiers which are to assault; some appoint the armed

armed men to be flanked with the sho
others put the shot in the Front and R
of the armed men. But for mine o
part, I conceive the most approved or
to be, that the armed men be flanked w
shot; onely placing some three of f
ranks of shot in their Front, the better
give fire continually upon the breach, u
til the armed men have recovered the t
of it: And during the whole time of t
assault, all the Trenches to be furnish
with the very best of the shot, who a
to beat the Enemie from their Parape
that they may not give any aid to the d
fendants in Flank: And the whole Can
besides to be in Arms, both Horse a
Foot; as well for the more terrour to t
Defendants, as for the intercepting
the Enemie upon all occasions and inte
ruptions.

And if it fall out that in the assault
the Breach the Ditch cannot be conv
niently passed over by the way of Gal
ries (formerly described) the most prop
course in stead of them may be, after t
Breach is thoroughly made, and the ap
proaches under the covert of the Tren
ches brought to the brink of the Ditch,

to

fill up the ſaid Ditch with earth and ſtones; towards which alſo the ruines and rubbiſh of the Wall made by the Battery will much conduce: neither is there any Moat of ſtanding water, or Ditch ſo deep, but by this courſe may be ſurmounted.

True it is, that ſometimes to this purpoſe long and great Trees are thrown into the Ditch, covered over, and faſtned together with planks, and ſhadowed on the ſides with Blindes: But this is not held ſo certain as the former, though both of them are in uſe where the Ditch hath in it a ſtanding water. But if the water of the Ditch be a current, and any thing ſwift, then the beſt way is to make a Bridge upon a large boat; the which being apted and contrived to the breadth of the Ditch, over againſt the Breach: is to have certain Draw-bridges belonging to it at each end one, ſo fitted, that they may ſerve for Blindes and coverts alſo, to ſhadow ſuch men as are to conduct the Bridge. And being thus contrived and manned, it is to be ſuffered to float down with the ſtream from the place where it was firſt framed (which muſt be in a place freeſt

freest from danger of the Enemie:) a
to be moored and made fast directly u
the breach, that so the Draw-bridges
merly mentioned, being then let fall,
Souldiers which are upon the main bri
may not onely finde a sufficient and w
secured passage for themselves, but for
rest of the Army also, (as many of th
as shall be thought needful) to assault t
Breach, and to storm and carry the Town

CHAP. XV.

*Of all Kindes and formes of Battels. Of do
ble Batteries, and the like. How the Gu
are to be mounted in double Batteri
Of the Guns proper for Batteries, how
ployed.*

BEfore we leave this subject touchi
Assaults upon Towns and Forts, a
the approaches due unto them; and thoug
somewhat also hath formerly been not
touching Batteries; yet, for the bette
understanding of them every way, it wi
be necessary to add somewhat more
large.

Ba

Batteries are Mounts of earth, and their forms are generally thus contriyed: the sides of the Works toward the Enemy are to be made Cannon-proof, that is, of twenty five foot in thickneſs: in the Rear and Flank of them they are to have a Wall of fifteen foot thick; onely the one ſide of this Wall is to be thicker then the reſt, as riſing with a Walk and a Parapet on the inſide: in their Front they are to be filled with two exteriour Angles, and their faces to be raiſed with open Windows, or Ports (as they are generally called) thorow which the great Guns are to play: on their inſides they are to have a good groundſelling or floor made of Turff, Fagots, or the like; of eight foot in heighth, and in breadth anſwerable to the greatneſs of the whole Work. And this floor is to be covered with planks, for the better traverſing and reverſe of the Guns.

But before the raiſing or planting of any of theſe Batteries, eſpecial obſervation is to be taken, whether there be any poſſibility or likelyhood of ſuccour to be brought to the place againſt which this Battery is raiſed: for if there be, then care is to be had, that though the Enemy ſhould

should give on with a main force, ye
Ordnance upon the Batterie may e
be retreated or defended. And this
be probably effected by firming the
tery on all sides, and by so blocking u
Avenues, and making of convenient
rapets, that the Enemie shall not be
to make any other accesses, save by
very Ports where the Pieces lie. An
the Battery be of necessity to be pla
upon a Dike, and thereby may be in
of being drowned; the heighth of
Dike is to be considered, and provi
made accordingly; and a passage for
the *Campagna* to be guarded and
free, that so the Pieces may be car
off that way, if there be no other
medie.

And because it is generally necessa
and especially in some cases, that the
ces of Batterie be lodged in secret, and
much obscured from the Enemies Cann
in the Town, as possibly may be; t
especial course tending this way, may
practised by making a convenient defo
in the Platform; and that in such a m
ner that the Pieces may make their reve
ses to downwards, as being reversed m
full

lly hide themſelves from the Enemies
: and then to be drawn up again by
es and cords well faſtned to the heads
the Carriages and the Wall of the Bar-
aloft.

True it is, that theſe Guns thus lodged
onely to be imployed upon the very
of occaſion, and not ordinarily. A
ond way therefore there is, by making a
ble Battery, in this manner. Firſt of
a Battery is to be raiſed with Shoul-
and Ports, ſufficiently deep, equal,
large, as well before as behinde, in
a faſhion that thorow them the Ene-
Cannon may be diſcovered in a right
. This done, another Battery is to be
ed, with Ports and Shoulders in a due
and anſwerable proportion, ten foot be-
this; from which through the Ports of
other, the Enemies Pieces may alſo be
ectly ſeen in a right line. And in theſe
ermoſt Ports the great Guns are to be
ted: the which nevertheleſs, by
on of the foremoſt Batterie, will be ſo
ly ſhadowed and hidden, that the
my ſhall very hardly diſcover them,
the leaſt to any hurt or damage.

A third way to this purpoſe, may be by
the

the choice and laying out of a natural p
of ground; before which a Ditch be
ſunk to the depth of eleven foot, (wh
will give a ſufficient defence for the G
and thoſe that manage them) a ſuffici
quantity of ground is to be allowed
the reverſe of the Guns, with the diſtan
of twenty foot one from another in th
being lodged; having an over-plus
ground behind them, which by the help
Pioneers is ſo to be ſunk, that men m
ſafely paſs to and again behind them un
covered; upon which, planks being ar
ficially laid, the Guns are to be mount
And laſt of all, Ports are to be cut thro
the natural earth, to a ſufficiency of lar
neſs, depth, and heighth, through wh
the Ordnance are to play. And this
Work ſo aſſured, as not to be anno
or endangered from any part of the To
Wall, if the earth be firm and ſolid.

As for the Guns proper for a main B
tery, as well in reſpect of number
kindes, they may be thus repartited; e
Cannons, ſix Demy-Cannons, and
Quart du Cannons or Culverins. Tou
ing the diſtance they are to be lodged
from the part to be battered, we have ſp

ken before. As concerning the ordering of theſe eighteen Pieces upon the Battery: The Cannons are to be planted in one Camerade, and to beat and batter in Angle right againſt the Curtain: The ſix Demy-Canons to be divided into two Camerades, on each ſide of the Cannons three, and to beat in Traverſe; The four Culverins are to be imployed for Defences, and to play upon the Enemies Pieces that ſhall be found in flanker of the Curtain from the Bulworks. For though it be true (as aforeſaid) that where Batteries are to be laid againſt Forts and ſmall Towns, where the Bulworks are near one unto another, it is better to batter upon the Bulworks then the Curtains; yet againſt fortified places of large extent, where the Baſtions or Bulworks are far removed, it is more advantagious to beat upon the Curtains; in regard that the Bulworks are better furniſhed then thoſe Curtains can be: and beſides, the Enemy may better entrench himſelf within the Baſtion then within the Curtain; neither can the Bulworks in large Pieces of Fortification bring any extraordinary damage to an aſſault, by flanking of the Curtains;

by reason of their distance one from another. On the contrary, true it is, that in Batteries made against Castles or Forts, it is safest to batter upon the Bulworks: for here the Bastions are so neighbouring and Flank with so main a force upon the Curtain, that an assault cannot be given without an extraordinary Carnage, and much loss of Men. And when the Batterie is thus upon the Bastion, the same Pieces are so to play and batter in Cavalier, or upon the point of the Bulwork, as they did before upon the Curtain.

CHAP. XVI.

A besieging Army, how to defend it self. Presidents hereof ancient and modern. Observations upon the Siege of the Bors.

HAving gone thus far in this way, by the way of Offence, we shall now in this Chapter give some Advertisement how a besieging Army is to defend it self when it expecteth to be assaulted by an Enemy, a Friend to the place besieged, and perhaps Master of the Field; which hath be-

befallen both anciently and modernly. And though it be a case of much danger, yet have some expert and wise Commanders provided for themselves and their Armies, to the preservation of both.

The Rules and practices conducing hereunto, have been these: To entrench so sufficiently against the Town besieged, that no irruptions or Sallies may be made upon them out of the Town, to any considerable loss or danger: That all the Quarters be so well fortified in their Outworks, that neither Horse nor Foot from abroad may make any assaults upon them, but with infinite disadvantage and hazard: That a most especial care be taken that the besieging Army be so lodged and encamped, that by some commanded Passage it may be certainly and sufficiently supplied with Victual, either from some of their own neighbouring parts, or some other Country to friend; And withal, that the circumjacent Country, through which the Enemies Army is to approach, be as much as possibly may be, harried and wasted beforehand; that so it may either not be able to victual it at all, or at least very sparingly, and that with much hazard and loss.

And of this, because Presidents wo
much, I shall set down three: The o
ancient, taken out of *Polybius* (in his nin
Book;) which was acted at the Siege
Capua: before which the Roman Con
Appius being set down, *Hannibal* seekin
to remove him, (and being by far Mas
of the Field) enclosed the Roman besi
ging Army between himself and the To
besieged; and finding no possibility
forcing the Consul in his Trenches,
practised to draw him out to some Sk
mishes; but failing in both, and weari
with many urging inconveniencies,
was thus forced to march off, and lea
him before the Town: by reason (sa
the Author) that the Romans had bo
sufficiently victualled themselves befo
hand, and providently so wasted the Co
try round about, before the coming in
the *Carthaginians*, that when they w
come they were not able to abide
through the want of Victual, and especi
ly Forrage for their Horse. The Marq
Spinola preserved himself in the like m
ner, at his Siege of *Breda*. But beyo
all others, we have a singular Presidents
this purpose, in the last Siege of the *Bo*

wh

when that Town was taken in by the United States: In their ſtupendious Works in the outward Entrenchments, which were no leſs in Circuit then a good days journey; every where fortified with Horn-works, Half Moons, Batteries, and the like: In their diverting of a River from its natural courſe, ſo that the beſieged Town was not only deprived of neceſſary water, but all that part of the Country deeply drowned, whereby the Enemie might have no acceſs to relieve it: In that, to prevent a Relief to the Town by Boats, there was raiſed a firm Cauſey of three miles in length, through ſo waſhy a place, that it was little leſs then a Lake; the which Cauſey was broad enough for two Carts to meet and paſs by one another; with foot-paths beſides, on each ſide, and every where ſtrengthened with Sconces, Batteries, and Horn-works, all of Earth: And laſtly, in that (which made it fulleſt of wonder) this world of Earth and Fagots was brought in Boats from a part at the leaſt two or three miles diſtant.

And yet all theſe were the Works onely (one may ſay) without dores. As for thoſe within, they were the particular

Breſt-works, and the ſtrengthening of e-very Quarter: The Trenches that firſt led to the Enemies Sconces without the Town; and after they were taken in, carried to the Town-ditch: The Galleries that were laid over the Ditch: And the Mines which were brought under the Wall. So that although the Enemie marched towards us with a very poten army, and every way very well provided yet durſt he not (indeed could not) do any thing to any purpoſe, ſave onely look upon us as we lay in our Works: but we forced to let fall that important Piece into the hands of ſuch an Enemy, that well knows both how to keep it and make u of it.

CHA

CHAP. XVII.

Of Powder: touching the choice and keeping of Magazines of Powder: how to be safely lodged. Victuals, how to be conducted. The duty of the prime Conductor. Of the Victuallers or Sucklers.

AND thus far we have touched upon the most of the material Pieces belonging to the first Requirable in the making of a War, and that is, *Munition.*

It remains to take some notice of Powder and Victual, and so to end this our first Book.

And first concerning Powder: Of which I shall onely speak of the choice of it, and the lodging of it when it is gotten. For the choice of it, or the trial of it: That Powder which being laid upon a smooth stone or plank, or the like, having fire given unto it, doth mount upwards with a clear fire and flame, without much smoak, and without leaving any soil or mark upon the stone or plank, may be received for good Powder. On the contrary,

trary, if upon the firing there remain any moist white substance somewhat blewish it is a sign that the Brimstone is not sufficiently purified, wherewith that Powder is mixed: if there remain any grains of an earthly colour, it is an evidence that it was not well grounded nor cleansed: if there be whitish grains, it is a sign that the Salt-Peter is too salt, and neither well grounded nor purified: if there be seen any reddish or tawnyish grains, it is a token that the Coals were not well prepared. If Powder (some small quantity) being laid upon ones hand, and there fired, offend not the hand at all, or very little, but result with a small noise or puff, it is a singular sign of excellent good powder. As for the ways of trial without fire: if Powder being bitten by ones teeth, taste moderately salt, it is a tolerable token of its goodness: if it be of colour not over black nor obscure, but somewhat tending to a red, it is a very good evidence of good Powder.

As touching the safe laying of it up: it is a most necessary providence for the ordering of Powder for the use of an Army in action, that it be disposed into two or three

three ſeveral places, and many Magazines, the better to avoid the danger as well of caſual fires, as treaſons, and the Enemies ſurprizes.

And for the ſafe keeping and certain ſecurity of it in Towns, and eſpecially where mighty Magazines are to be provided, it was the practiſe of a wiſe Republique, to lay up the ſeveral materials and ingredients in ſeveral parcels; as the Salt-Peter by it ſelf, the Brimſtone by it ſelf, and the Cole by it ſelf; the which upon all occaſions might ſuddenly be fitted for preſent uſe: And in the mean time, all the hazards and miſchiefs that might otherwiſe enſue, be abſolutely prevented.

And thus much touching the particular of Powder. As for that of Victual, it is obvious to every judgment, that it muſt be provided according to the number of the Army, and the length of the March, and the nature and condition of the Country that the Army is to paſs thorow. I ſhall therefore ſpeak onely of the courſe of conducting it, and of thoſe kinde of people that are to ſell it, termed Sutlers.

For

For the order of conduction of Victu
to or for an Army, (especially when the
is peril of being charged by an Enem
upon the way) command is to be given
that all the disordered multitude of Carri-
ges and Waggons wherein the Victu
and the like Baggage is to be carried
put in equipage either before day, or ver
early in the morning of that day where
they are to march. And in the first plac
some Troops of Horse are to be sent o
to discover upon all the Advenues of th
Enemy; and for the better safe-guard, th
Artillery appointed for their guard, m
be usefully placed both in the Van of thei
Carriages, and in their Rear; and tho
not onely to beat upon the Enemie if h
shall approach by any of those ways, bu
by their thundering to give notice whic
way the Enemie comes; that so the Sol
diers may take a general Alarm, and ac
cording to former direction repair to th
part that shall most require assistanc
Both sides of the ways also where the Car
of Provisions are to pass, are to be guarde
with loose Wings of Horse, and with the
some numbers of Musqueteers may be ad
vantagiously intermixed, and the best o
the

the Horſe may bring up the Rear. And in this manner may the Carriages march, and be ready to receive any Charge. Diligence is likewiſe to be uſed, that ſuch ways of March (as much as may be) be made choice of, as are leaſt ſubject to ambuſhments; and that whenſoever they are to come to blows, it may be in places of advantage. To which end, either Altes are to be made, or a quick March to be practiſed, as cauſe requires. And to this purpoſe alſo, good uſe may be made of Waggons in ſtead of a Trench, drawing the Souldiers within them when a deſperate Charge is attempted by the Enemie.

As for the prime Conductor of theſe Victuallers and Victual, he is to be the laſt man out of the Quarter, when theſe Troops are to march, and to make a ſtand, and to take a view of them all, and to haſten them forwards. And when they are well-near all paſſed by, he is to march in the Rear of all, though now and then he may advance before into ſuch parts as he conceives may moſt require his preſence; but ought to be the laſt man that takes up the Quarter. He is alſo to obſerve that

all

all the Carriages and the Souldiers of the guard be quartered before the dark of the night; that so whileſt there is yet some day-light, he may ride round about the Quarter to ſee that all things be ſure.

Care is likewiſe to be had (if poſſibly it may be) that intelligence be gotten from the inhabitant Peaſants, as well of the Ways, as of the Enemie; and that as well for conveniency as ſafety. To which end all Bridges and Paſſages are to be known, poſſeſt, and guarded. Spies alſo are continually to be employed, to gain knowledge, and to give notice of the Enemies deſigns. And Centinels in the night-time to be placed upon all Avennes. And if any extraordinary ſtrength be expected to aſſault, it will be neceſſary to raiſe ſome Redoubts and Forts upon the Ways and Paſſages, and upon all places where the Enemie may oportunely give on.

Touching the Victuallers or Suckleers and Merchants and Artificers which follow an Army; they are not any of them to bring any of their Commodities or Merchandiſe into the Camp, without licence from the General; who is to command to have them well viewed, leſt their

Victuals

victuals should be corrupt, and infect the Souldiers with sickness; and their Merchandise sophisticated, and the Souldier cheated and abused. Nor are these men to sell any of their Commodities but in that part and place where the Quarter-master-General shall appoint, lest disorders grow in the Quarters; nor there neither, but at such times, and at such a rate, as shall be allowed by the Provost-Marshall-General, that so there may be no extortion upon the Souldiers.

And if any of these shall be found Delinquents in any of these kindes, he is to incur the penalty of Imprisonment and Confiscation of his goods. And if he offend against any of the Martial Laws published for the government of the Army, he is to suffer according to the quality of the offence.

And thus we have briefly run through the three principals dependant upon the first Requisite in the acting of a War, comprehended under the Term *Munition*. And so we end our first Book.

A DISCOURSE OF The Requisites in making a War by Land.

Book. II.

Treating of the second Requirable in making of a War by Land, which Men, or Bodies; with other Materials of War.

CHAP. I.

Touching the choice of Souldiers. Of Officers due to a private Company

IN this Second Book I shall give some advertisements touching Men or *Bodies*, wherewith the Body of an Army is to be made up: It being the second Requirable in the general Subject we treat of, which is *War by Land.*

And in the first place, we shall propound some cautions about the election and choice of these men; wherein five particulars are most considerable. 1. That they be rather taken out of barren Countries, and hard breeding, then out of Cities where there is full feeding and ease. 2. That they be young, as rather of eighteen years of Age, then eight and forty: for the one may better be brought to obedience by good Discipline, whereas the other are more apt to obstinacie, and pervice. 3. That they be of a middle stature, strong of body, and manly looks. 4. That they be of lively spirits, resolute, bold, and well mettled. And 5. and last, that they be of an honest condition, and not bred up in effeminate and womanish trades, much less in Debauchments and idleness.

As for the choise of men, in respect of the part where they were born; as whether Natives or Foreiners: I consent with those who prefer the Natives; in that they are generally more loyal; in that they are more patient, more tractable and obedient, as being every way more unsetled; in that they are less chargeable,

able, and sooner at hand: whereas Mercenaries and Strangers, as well at going as coming, force longer attendance, greater expences, and are subject to committing many more outrages.

As touching the election of Souldiers, the point of the kinde of Arms they are to carry: Howsoever the strongest and tallest men are generally ordered to carry Pikes, and the lowest and nimblest to handle the Musquet; yet it is mine opinion, that above all other things, respect and consideration is to be had, to what Arms every man doth best frame himself, and to which he stands best affected. To which end it is not amiss, that the Muster-Master take notice of it, before he distributeth the Arms to the Individuals.

And for the Composition or number of Souldiers in every private Company (the multiplying of which Companies, Regiments are made; and of Regiments, Armies:) Howsoever this hath been so much varied, yet in regard of a competent advancement for the Captain, and the performance of his Command, the fittest and apcest composition seemeth to be two hundred men with Officers and all

be divided (if you will go according to the vulgar Discipline) into two equal Bodies, of one hundred Pikes and one hundred more: or after the late Discipline with the Swedes (the which in respect of the use of the fiery weapons, I most approve) into twelve Files of Musqueteers, and nine Files of Pikes; and reckoning six men to every File (for so many and no more they use to order the depth) a compleat Company may consist of one hundred twenty six men, besides the Officers.

Now the Officers due to every private Company (to begin at the lowest, and so upwards) are these following.

The Lancepesado, or Launspresado; who is the leading man of the one half of the File, and thence vulgarly termed the middle-man. And this Officer (as the rest of them) taketh his place, either by his antiquity, or the reputation of him under whom he commandeth; as the Lancepesado in the Generals own Company, is the eldest; as he the meanest, that is of the youngest Captains Company of the Regiment.

The Corporal is the next above this; who is the leader of a whole File, which in

number is more or less, according to the use and custom of several Disciplines.

The next preceding the Corporal, is the Serjeant of the Company; and this Officer hath no setled place or leading with the Company, but passeth to and again to see that the Files and Ranks be well observed in all parts of his Company.

The Drum is the next Superiour to the Serjeant, who ought to be a Souldier as well as a Drummer, and (if it may be) a Linguist, or at the least, a piece of one that so he may take and give all passages of Parties about which he is to be employed. And these Drums are ranked according to the Officers and Captains they serve under: as, the Drum-Major of the Army is the principal; the Drum-Majors of the Regiments next under him, ranked as their Regiments; and then the Drummers of every Company.

The next superiour Officer, is the Ensigne, or Bearer of the Captains Colours, who is to be a Gentleman, or deserving to be so repured. And with us (for the Spanish Discipline admits of no Lieutenant but their *Alfereze* or Ensignes supplies both places) he taketh place next after the Lieutenant.

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The Lieutenant of a Company is next above the Ensign; and in his Captains absence acteth all the Captains duties, and in his presence executeth his Commands.

The Captain is the prime Officer of a private Company, and ought to be as prime in his sufficiency and abilities. And these are the Officers belonging to a single Company. For as for the Clerk of the Band, and the Chirurgion, whereof every particular Company ought to have one of each kinde; they are not properly to be accounted Souldiers, nor Military Officers, as having no Command; though one as necessary for the Captain and Treasurer in keeping accounts, and the other for the Souldiers, in curing their wounds, as any of the rest.

CHAP. II.

Of the Officers due to a Regiment. Officers having a general charge. Of Officers next inferiour to Field-Officers. Officers of the Field, with their Titles & Charges.

AS for the Officers belonging to a Regiment, the lowest of them is the Quarter-master; whose Office, besides the divisions of the Quarters, is to take the lodgings for his Regiment, in the nature of a Harbenger: and he holds rank according to the dignity of the Regiment wherein he serves, and of which he has care.

The next above the Quarter-master, is the Provost-Marshal, who takes the charge of all Delinquents, as also of all Prisoners taken of the Enemie; and is to see the executions of Justice to be duly performed.

In the rank above him is the Serjeant-Major of a Regiment, who is to be elected out of the most principal Captains, and his Office is to form and embattel the

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Regiment, as he shall be directed by the Serjeant-Major-General: and he is ranked above all Captains of private Companies.

The Officer next superiour to the Serjeant-Major, is the Lieutenant-Colonel; who in the absence of the Colonel, commands as Colonel; and in his presence executeth his directions and commands.

The supremest Officer of a Regiment is the Colonel; and in dignity is as transcendent to the Captains, as they to the Soulders. And these Colonels are ranked among themselves, after their antiquity, the eminencie of their Regiment; the eldest Colonel (who of due is also to be Chief Camp-master) holding the first and highest place.

Now besides these Officers of a Regiment, there are certain Officers in an Army-Royal, which though they have a generality of charge, and are superiour in that regard to the Officers of a Regiment, yet are not counted, nor attain to be Officers of the Field: and these are,

The Master-Gunner of the Army, (who is the meanest amongst them;) and he is Officer under the Master of Generall

of the Ordnance. And his authority t
tends over all the other Gunners; eve
one of which he is to overlook in their
veral places, and to cause them to perfo
their Duties.

The next above him is the Trend
Master-General; whose commands e
tend over all the Pioneers, and to
laying out their Works; whether th
be to be imployed for the Guard or End
sing of the Camp, or the raising of Scou
the casting up of Brest-works, the lay
open of the Ways, or any the like e
ployments.

The Officer next preceding this Trend
Master, is the Master of the Waggons;
he hath a general command over all
Waggons, Carriages, Sledges, and the l
conveyances; and is to order them
their Marches, and to see them Quar
ed, and provided with necessary Tools,
the like.

The Officer superiour next to the M
ster of the Waggons, is the Forrage-
ster; being a principal Dependant
the Lord Marshal; and is to take ch
and to dispose of all manner of Provi
for the Horse; and to oversee all the

sions Officers of that kinde: and to take care that equal distributions be made of those kindes of Provisions; and to cause deserved executions to be inflicted and imposed upon the Delinquents of that nature.

The next to him in place and office, is the Victual-Master, or chief Victualler; to whose care and charge is delivered all the food and sustenance belonging to the Souldiers: and (by his inferiour Officers, named the Provant-Masters) he is to cause distribution thereof to be made to the Souldiers, according to the proportion and allowance appointed by the General.

The Judge-Marshal is the next superiour Officer to the chief Victualler; who is to be well skilled in the Civil and Martial Laws; the which he is to explain, and make known unto the Souldiers; and to pronounce the censures decreed from time to time in the Martial Courts.

The next Officer preceding the Judge-Marshal, is the Scout-master-General; who hath the command of all the Scouts; ordereth them, and appointeth them their stations, and giveth them the directions

which he receiveth from the Lord Marshal. He is also a principal Agent in ordering of the Camp; and informeth the manner of the Horse-Parado when the Watch is to be set.

The Officer next above the Scout-master, is the Lieutenant of the Ordnance, who hath his chief dependance upon the Master of the Ordnance, and stands charged in particular with all the smaller kindes of the Ordnance, and Munition belonging unto them; and in the absence of the Master, he commands as Master.

The last, but chiefest of these kinde of Officers, is the Muster-master-General, whose duty and office is to take the number and musters of all the Army. He is also to have a care that they be well armed, and their Arms in good order, and in point; that the particular Companies be kept full. He hath also under his command and controll all the inferiour Muster-masters or Commissaries, and is to give out all the Warrants for full pay; and checketh all gross defaults. And this Officer, though he be none of the Officers of the Field, yet is always to be one of the Council of War.

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The highest rank of Officers in a Royal Army, are those stiled the Officers of the Field; the lowest of which kinde is the Serjeant-Major-General, who is ever to be of the Council of War: And he hath the supervisorship of all the Serjeant-Majors of the Army. This Officer in the Swedish Discipline, is termed the Commissary-General.

The Colonel-General is the next superiour to him; upon whom resteth the hearing and composing, and ordering of all differences of any high nature. And he also is evermore to be one of the Council of War.

The Lieutenant-General of the Horse, is next in order of precedencie; who hath the same Command amongst the Horse, that the Colonel-General hath with the Foot; and by his place is always one of the Council of War.

The chief Treasurer of the Army hath the next precedency; and he is under no command save only the Generals. He is to fix his respect thorowout the whole Army; and in peculiar is to have an Eye upon the Auditor, Muster-master, and Commissary of the Army, in relation to their ac-

accounts. He also is by his place to be one of the Council of War.

The Master of the Ordnance is the next above him, and is a principal Officer of the Field; as having under his command all the Artillery, Munition, and the whole Train belonging unto them; and constantly one of the Council of War.

The Lord Marshal hath the next place of precedencie; and his commands stretch every way both over Horse and Foot. He hath also the prerogative to make good whatsoever shall be found fit in point of Matial Law. And I have known him in the absence of the Generalissimo, to have the command in chief: But this was when there was no Lieutenant-General. He is always a Counseller of War.

The Lieutenant-General is as it were the younger brother to the General himself; for in his absence he hath his sovereign authority, and the absolute command of the whole Army; and at all times is as it were the Superintendent over all them.

The General is he that ruleth all; so that it is to be expected that he should be every way also as supereminent: And the

rather

rather, in regard that in an Army there is to be but onely one Generalissimo. For though it hath sometime been seen that two men have been put in this Command with equal Commission, yet do I not remember that ever any Army so commanded returned with Victory.

CHAP. III.

Of the Exercising of a private Company. Of the giving of Vollies of small shot. The Swedish way of giving Vollies of shot. How to give Vollies of shot in a narrow path. The Discipline of Marches. Of the understanding of the Drum.

HAving thus far made up the body of an Army with Bodies, and fitted them with Heads, we shall now bring them to action: And in the first place, give some general Rules concerning the Drilling and Exercising of a private Company, and so proceed to the whole body of an Army.

To Exercise a Company exactly, it is to be divided into three Corporalships; and then

then subdivided into as many Files as the number will bear; and every File into Fellowships or Cameradoes. The Corporal of every Corporalship is to be the leader of the chief File thereof; and the Lanceprisado (who in the Corporals absence, when he is upon the Guard or elsewhere, executes the Corporals duties) is to lead another File; and the practick and ready men of every Corporalship are to lead the rest.

The Company being thus divided and ordered, these things are mainly to be taught; the carriage and use of Arms, Marches and Motions; and the understanding of the sounds of the Drum, and words of Command and Direction; which are rightly termed the Souldiers *Vocabula Artis*.

The carriage of Arms is to be appropriated to the most of comelinesse and use. The use of the Pike, is either in receiving or giving a charge. By being taught the first, the Souldier learns to withstand the Horse; by the second, to encounter with the Enemies Pikes, and to understand when and how every man, and so every rank are to give their push or blow.

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the use of the Musquet, the Souldier is first to learn how to present his Piece, how to take his level, and when to give his Volley with those of his Rank.

Now the ancient and vulgar manner of Discipline for the giving of Volleys of shot, was that all the shot of one Corporalship should give fire at once. But this was absolutely condemnable: for either those in the Rear must hazard the shooting of their leaders through their heads; or else over-shoot the Enemy, and spend their Powder in vain. And besides, the Volley thus delivered being once given, the Enemy may come on without impeachment or annoyance. In stead of this therefore, a more useful practice hath been to order the first Rank onely to give their Volley; and if the body of the Company march, then that Rank that hath given the Volley to stand; and the second Rank to pass thorough it, and to give their Volley, and then they to stand; and then the third Rank to advance and give fire; so all the rest of the Ranks in order. But if the Company, or Brigade, be Barricaded, stand firm, then the first Rank having given their Volleys, are to fall back,

and the second to come in their rooms; so the third, fourth, and the rest. And this course (the men being commanded men) the Vollies may be continued, the Enemy never free from annoyance. And all this is easily performed, if at first all the shot be caused to open their Files to open distance.

But because even this also is defective in respect that there cannot be brought so many hands to give fire at once upon the Enemie, as were to be wisht; that absolute Souldier the late King of *Swedeland* disciplin'd his shot to give fire three ranks at once; and this was done by causing the first rank to give their Volleys upon their knees; the second somewhat stooping over their leaders heads; the third rank standing upright, to give their Volley over all their heads: and this to be done at one and the same time. And by this means and course was poured more Lead upon the Enemie at once, then otherwise by far, by any of the other ways.

And this manner of giving fire must needs also be very useful and advantagious in all Wood-Services, and whersoever the Enemie is to be encountred in narrow Lanes

nes or Paths, where men cannot be led but in a ſingle file: for if the three firſt men thus giving fire, be inſtructed after they have given their Volley to place themſelves cloſe up by the ſides of the rath where the Enemie preſents himſelf, and ſo ſtand there ſidelong towards the Enemie, and give place for three others of their followers to advance and do the like; a continued Volley of Shot may be thus delivered, although the whole file of men ſhould conſiſt but of fifteen in all. As for the Diſcipline belonging to Marches; after every man once knoweth his proper place, and underſtandeth how to obſerve his file and rank, there is no difficulty at all in a plain march. In a Counter-march alſo, if the leaders of the files be well choſen, and that every man obſerve the leading man, there is no great difficulty neither. As touching motions, ſome are performed without change of place, only turning their faces to the right hand, or to the left, or about, as the Enemie is found to charge either in Flank or Rear: Some require a change of place, as theſe motions are performed by removing from one rank to another; and then

then some move, and some stand still. A
these kindes of motions are called do
blings of ranks, and doublings of files,
the Enemie or Ground shall give cause,
make the Front or Flank greater or les
There is besides these another kinde
motion to be taught, in which all do mo
and yet none do march: And this is do
by the opening and closing of files;
is practised not onely when one rank
pass thorow another, or the whole Bri
to make a Counter-march; but also wh
there is an intention to draw the Tro
together in haste, and yee in order m
on the one hand then the other. And
so much only shall be spoken in this place to
ing Motions; intending to speak more
large of the use of them hereafter.

Concerning the understanding of
sound of the Drum; the Souldiers are
be taught not only to know and obse
what the Drummer beats, but what time
keeps in beating; that accordingly th
may hasten or slack their marchings
by the voice they are called upon to
other motions, of which likewise we sh
say more, as occasion shall require.

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CHAP. IV.

Of great Guns due to an Army-Royal: of the kindes and choice of them. Of the number of Horſe to draw great Guns. The beſt way of drawing heavie Guns.

WE have gone thus far towards the proportioning of the body of an Army, as to bring the Men or Bodies together, to fit them with Chiefs and Commanders, and to give them ſome knowledge in the uſe of their Arms: We have likewiſe ſpoken in the beginning of our firſt Book, of ſuch kindes of Arms as are fitted for the perſons of men, and are portable in their hands. It remains that we give ſome advertiſements touching thoſe ſorts of Arms or Weapons which are to be carried with Armies, but are not portable by the men. And theſe are compreheended under the name of Artillery, or great Guns; of which though we have ſpoken ſomewhat in the former part of our Treatiſe, yet it was onely of ſuch as were to be lodged in Forts and Towns of War, and to be employed againſt them;

and not of those to be used in the Field, and to accompany and march with an Army.

We shall therefore in this Chapter and the next, take notice of the great Guns requirable for an Army-Royal; together with their kindes, carriages, casting, numbers and choice. And we will propound this Army to consist of forty thousand men; of which, thirty four thousand to be Foot, and six thousand Horse: which is a repartition that may hold proportion with all other numbers, if reduced answerably.

As for the number therefore of great Guns requirable for such an Army in its march: It hath been regulated (after much debate) by some experimented Commanders, that for every thousand of Souldiers there should be allowed one piece of Ordnance; and so for forty thousand men (as here propounded) forty great Guns. But for mine own part, I finde not how this can be brought to any certaintie: for who knows not but that several occasions, different ways, and particular accidents may, and must alter the proportion? So that herein no other Law or Rule can be precisely prescribed, then what opportu-

nity

...city offers, and necessity urgeth. Nevertheless, if I should be put to it, to set down a strict and precise number of great Guns for an Army of forty thousand men, I would sooner propound thirtie pieces then fortie. And my reasons are: First, in that thirty great Guns disponed and well ordered, at the Angles of the Armies Front, shall sufficiently serve upon all approaches of an Enemie, either whilest the Army marcheth, or when it is to be ordered to fight. Secondly, in that these thirty pieces shall be sufficient also, (duly chosen) for the besieging and battering of any place, though there should be a constraint of raising two Batteries, having each of them three Camerades in six mounts. And lastly, in that by thus lessening the number of the great Guns, as much as may be, there may withal be a lessening of the number and Train due unto them, with the expence for the furniture, and the charge of the Draught-horses, and their forrage: together with the like rest of the unavoidable pressures.

Touching the kindes of such great Guns as are most proper to answer all the occasions of an Army-Royal: they are

(in my opinion) to be Cannons of Battery, Demy-canons, those called (by the French) Quart du Cannons, Culverins, and Field-pieces: thus to be repartited; Of the Cannons nine, of the Demy-cannons eight, of the Culverins (or Quart du Cannons) [illegible] and of the Field-pieces seven. The Cannons to be employed for battery onely at Affieges; and the rest, as well for the scowring of the *Campagnia* on all sides, as to play upon all the Avenues of the Enemy when they come near. And besides, being thus ordered into these kindes, they cannot be so over-topped in the largeness of the bores, but that the Enemies bullets sent upon them, may from some of these pieces be returned upon those that sent them; and hereby that scarcity and default of bullets supplied, which by many occasions and accidents may befal the best provided Army that is.

And an example of the neglect hereof and the ill that succeeded upon it, we have in the Wars between *Charls* the fifth and the French King; where the Emperor getting Intelligence that the Artillery belonging to the French Army were all of them of the smaller kindes, gave order

the Maſter of his Ordnance to furniſh his own Army with ſuch Guns whoſe calibers or bores were greater then thoſe of the Enemies; whereby it came to paſs, that in a long play of the Ordnance of both ſides one upon another, the French fell into want of bullets, whereas the Imperialiſts had abundance; theſe being able to retort and make uſe of the Enemies bullets, but not thoſe of theirs: whereby the Imperialiſts at that time obtained a remarkable Victory.

As for the number of Horſe requirable for the draught of theſe ſeveral kindes of great Guns formerly mentioned: For every Cannon there are to be allowed three and twenty Horſe in fair and level ways; and in foul and uneven, thirty. And this is alſo when the Cannon is to be drawn in a Waggon or Cart: for if it be to be carried in its proper Carriage, there are never leſs to be allowed then thirty Horſe in the eveneſt and faireſt ways. For a Demy-cannon are to be provided fifteen Horſe at the feweſt; and ſeventeen in foul and hilly ways. For the Culverin and Field-piece, nine Horſe in fair ways, and ten in foul. But withal, give me leave

to give this caution, that for the Canno
Demy-cannon, and those heavy Gun
is far more commodious and safe alwa
to employ the long kinde of Waggo
with lofty Wheels, then to have th
Pieces drawn mounted in their prop
Carriages. And the reasons are: T
there shall not need to be so many hor
for the draught of a great Gun in a W
gon, as when it is in its Carriage: Th
the Waggon, by reason of the heighth
its Wheels, and its lightness, is fitter
better able to pass thorow all foul, sand
mooriſh and moist ways, then the Carria
can possibly be: That these kind of lo
Waggons are not onely commodious
the portage of the great Guns, but (if ne
require) for the conveyance also of m
pieces of Timber for the building of br
ges, and the carriage of them; or any o
ther the like occasions. And besides,
an Enemy should attempt an assault, or
give on upon any encampment; th
Waggons may most aptly and advanta
ously be used for the Barricadoing of
Avenues, and surrounding of all the Qua
ters of the Camp; and that on a sudden,
the nature of a slight Trench: so that th

Enemie

Enemie, and especially the Enemies Horse, shall not be able to charge home, but with great disadvantage and loss.

And if against this portage of these Guns in VVaggons; it shall be objected, that they cannot be so readily employed upon sudden Alarms and Onsets of the Enemie, as when they are drawn in their proper Carriages; it may be replied, that all such sudden alarms may as well be answered by the lesser sorts of Guns, which at all times may march in their own Carriages, as by the Cannons and higher Pieces: for these perform the work as well afar off as the Cannon doth. And besides, whensoever the march of an Army is duly marshalled, and the Avant-conduct providently ordered, an Army cannot be so assaulted on a sudden, but that intelligence may be gotten, and a sufficient space of time found to mount and order these great Pieces upon their proper Carriages, out of the VVaggons, by Gins and the like Engines, which are constantly to accompany them; and so be brought time-enough to the angles of the great divisions, and with all freedom perform all executions upon the assailing Enemy. And

whileſt this is in agitation, the lighter an leſſer pieces carried mounted upon the proper Carriages, may play at random and ſo retard, amuſe, and annoy the aſſail ing Enemie; and gain time. And th much concerning the kindes, number, a portage of great Guns fitted and appro priated for a Royal Army conſiſting fortie thouſand men. We ſhall in the e ſuing Chapter preſcribe ſome rules how caſt great Guns, and to finde where th are faulty, that they may be refuſed: ho to avoid the accidental cauſes of th ſhooting awry; how to know when th are ſufficiently fortified; how they are be cooled and cleared; what quantity powder belongs to the due lading of eve Piece; and what the weight of their ſh is: with ſome other particulars of th nature.

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CHAP. V.

great Guns, how to be caſt, and choſen. Of Guns unequally poiſed, and caſt with Honey-combs. The accidental cauſes of ſhooting awry of great Guns. How to ſhoot at a moving Mark. How to fortifie great Guns: how they may be diſcharged without cooling. Of Guns lying long charged. The due charge of Powder and ſhot for great Guns. The Diſpart of great Guns, how to be taken. Touching the laying of Platforms. Of the neceſſaries dependant upon great Guns.

Such great Guns therefore as are caſt Taper-bored, that is, not carrying an equal bore, or having the metal thicker on the one ſide then on the other, are to be refuſed: for with ſuch, no Gunner can make a ſtraight or certain ſhot; neither can ſuch pieces be any ways rectified but by a new caſting. And if a neceſſity force the uſe of any ſuch, care is to be taken that the choice of the ſhot be made under the ſize of the bore, leſt it ſtick upon the crooked

crooked side or part, and endanger the breaking of the Piece. And in making of the shot, or ranging of the level, consideration is to be had to the side of the Piece that the crookedness enclineth unto. In such Pieces likewise whose bores, though they be straight, are yet more inclinable to one side of the metal then the other, great heed is to be taken that they be not laden to the full of their powder; for so they will undoubtedly break: nor is it possible to make a right shot in any such Gun, by reason that the aim or level cannot be taken from the midst of the bore, unless a due allowance be given to that part and side towards which the bore and concavity is most placed, and so to be ordered and aimed thereafter. And in respect that many pieces of Ordnance, and especially such as have been much used, become sometimes more enlarged at the muzzle or mouth then in any other part of the bore; it is therefore a necessary providence, that for a sudden service, the shot to be used in these Guns, or such-like Guns, be not chosen to the full heighth of the bore at the mouth of the Piece, but rather a size under; lest in a hasty lading, the shot

stick

thick by the way, before it fall up close with the powder: in which case it cannot be stirred but with art and time, nor the Gun to be used without extream danger in the mean time.

Such great Guns also as are unequally and improperly poised, are to be held faulty; and such whose Trunnions are not duly placed: for hereby they either become too weighty at their breeches, and fall upon every discharge start up with their muzzles; or else over-heavy before, and then under-sink as much that way: so that no Gunner whatsoever, be he never so true an Arts-man, can make a sure shot with any such. For it must necessarily follow, that the shot will hereby be carried either over-high or over-low towards the mark that is aimed at.

Those great Guns likewise that are cast with potes, cracks, or small holes, (which are termed Honey-combs) within their concavities, are by all means to be avoided: for unless upon every discharge they be thorowly washed and sponged with water or vineger, whensoever occasion requireth a sudden recharging of them, the Gunners that lade them become in eminent

nent peril, by reaſon that ſome ſparks of fire may and are likely to lie hid with theſe holes, and thereby the Ladle full of Powder fired, as the Gunner is conveying it home into the chamber of the Piece. Now the ways to finde out and diſcover theſe Honey-combs, may be (if the weather be fair, and the Sun ſhine bright) by traverſing the mouth of the Piece directly againſt the beams of the Sun, and then holding a Looking-Glaſs in ſuch a manner between the Sun and the mouth of the Gun, that it may carry the reverberation of the Suns beams into the hollow of the Piece, that by the light thereof theſe pores and holes may thus be viſibly diſcerned. A ſecond way there is to this purpoſe, by taking a Wax-candle, and faſtning it to the end of a ſtrait ſtaff, and lighting the candle, ſo to put it into the bore or cylinder of the Gun. And by any of theſe means, theſe Honey-combs may be thorowly diſcovered, whereſoever they are, by the eye.

As for the accidental cauſes of ſhooting awry out of great Guns, they are many; of which the Gunner is to take notice: As, when the Trunnions of a Piece

are

...e not placed directly one against another: ...hen the plat-form lieth unequal, with the ...ne side more elevated then the other: ...hen one of the wheels of the Carriage ...any thing higher then the other; for ...hen the shot will incline to the lower ...heel: when one wheel is more streight ...pon the axle-tree, or more greased then ...he other: when one wheel stands upon ...rer ground then the other: when the ...ening of the Carriage is more on the ...e side then on the other: when the Car...ge is over-large, so that the piece lieth ...t firm. Consideration is also to be had ...f the Wind, and an allowance to be made ...f the weathering of the mark. Care is ...ewise to be taken, lest some stone or ...e like impediment lie in the way of the ...eels reverse. In all which particulars, ...nsiderate Gunner is to be very observ...nt: for any one of them being neglect...d, will assuredly deceive in the point of ...ooting right. And by this also it is ap...rent, and must be confessed, that touch...g the certainty in shooting right and di...t out of great Ordnance, though it be ...ch to be affected, it is nevertheless ve...y hazardously attained.

It

It is likewise to be observed, that in making of any shot out of any great Piece, and especially when it is intended upon Squadrons, or main Bodies, either of Horse or Foot, standing fixt, it is more behoofful to under-shoot the mark, then over-shoot it: for so, if the place afford any stones or the like rubbish, the fall and bearing of the bullet upon these, will effect more to the Enemies damage, then the shot it self can, though it hit the very mark that is aimed at; whereas the over-shot executes not at all any way. And in the making of a shot at a moving mark, be it at a Boat, or Ship under sail, or a body of Men or Horse in a swift march, consideration is to be taken whether the motion be towards you, direct upon you, or in passing by you; and the Gunner is to lay his Piece accordingly, and to give fire, that the shot may fall just in the way.

An especial care is also to be taken in the casting of great Guns (by such as are either to over-look them, or to make choice of them) touching the point of their being sufficiently fortified. Of which I will give instance in the Cannon extraordinary, and the Cannon ordinary; and

the extraordinary Culverin, and the ordinary Culverin.

The extraordinary Cannon in the circumference at the chamber, is to be of 8 calibers, at the Trunnions 6, and at the neck 5 ½. The ordinary Cannon is to be in the circumference of the chamber 7 ½, at the Trunnions 6 ½, at the neck 5 ½. The Culverin extraordinarily fortified, is to have in circumference at the chamber, at the Trunnions, at the neck. The ordinary Culverin, at the chamber calibers, at the Trunnions and at the neck . As for the leſſer pieces, they may all of them be reduced by theſe proportions, according to their ſeveral kindes and quantities. One thing is to be obſerved, that the leſſer the pieces be, they are always to be ſo much the longer, and the better fortified in their metals; and this as well to provide againſt an over-violent reverſe, as to preſerve them from lying over-ſhort in their Ports; and alſo that by their extraordinary fortifying, they may the better endure often diſcharges.

As for their Ports, we ſhall onely add this, that they are to be in their ſizes accord-

cording to the greatneſs and ſize of
Guns that are to be placed in them.
thins for a Cannon, the innermoſt par
the Port is to be three foot in the la
neſs; the outermoſt twelve. For a De
cannon; the innermoſt part to be
feet, and the outermoſt nine; and
the reſt proportionably. And to gi
competencie of place upon the Platf
where theſe Guns are to lie, and be co
veniently managed, charged, and refre
ed, there ought not to be leſs diſt
then twenty foot between Port and Po
ſo that the wheel of the Carriage of
Piece, of one Gun, may be fifteen foo
diſtance from the wheel of the other.
theſe Ports are on their inſides to be ra
from the floor of the Platform as muc
heighth, as they are in largeneſs; and
their inſides to be as much ſlented do
that ſo the Pieces may be traverſed to
downwards upon all the Avenues of
Enemy.

As touching the number of diſcha
that great Guns may endure, ſudd
one after another: It is held that in
of them as are extraordinarily forti
and re-inforced, (as aforeſaid) ten

may be allowed for a convenient number
be made out of one Piece, in one hours
ce; and eight out of those that are left
tified. But with this caveat, that af-
forty shot given even in this manner,
Guns are to be refreshed; for there is
thing that more causeth the decay of
great Ordnance, then the often hearing
them: in which regard, it is very good
vidence that they be refreshed often,
especially in hot weather, or a hot
Country.

Now the ways to refresh them, are by
use of fair water mixed with vineger;
upon urging occasion, to wet Sheep-
or the like herein, and so to lay them
the outside of the metal of the Gun,
there to let them lie until the heat of
the Piece be sensibly found to be allayed.
The use of Lie also is very commendable
this case.

Gunners are likewise to take notice,
such great Guns as have layen long
charged with their shot in them, are not
be given fire unto on the sudden as they
because the shot may in all likelyhood
rusted within them, and so in the dis-
charge may hazard the breaking of the

Piece. They are therefore first of all
draw out the wad lying before the shot, and
then to loosen the shot with the Ladle
and if it may be, to get it out. But
the shot be so rusted as not to be stirred
the Ladle, the course then is to abase
muzzle of the Piece, and to pour
the touch-hole so much water as
drain away the force and best part
the strength of the Powder, and then
put into the concavity of the Piece by
touch-hole, so much fresh powder as
onely serve to blow out the shot: th
which may thus be done, with all se
rity.

Having thus delivered some cautio
touching all these particulars, we
conclude this Chapter with giving so
advertisements touching the due quan
of the powder, and the weight of the sh
belonging to all these kindes of gr
Guns formerly mentioned: together w
their several lengths, and the length
their Carriages; as also of their seve
ranges at point-blank, and at their hig
elevation: mentioning withal, some
cessary observations touching their
parts and their Platforms, and the prop
tionable

double neceſſaries due unto them all.

And we will begin with the whole Culverin, which ſhoots a bullet of twenty pounds in weight; and the Powder as well groſs as refined, after the ſaid proportion of four or three fifths: the length of the Piece being of thirty two Calibers, which make ſixteen Geometrical feet; the level range ſix hundred ſteps; the fartheſt range ſeven thouſand one hundred and forty ſteps.

The Demy-Culverin carries a bullet of ten pounds in weight, with a weight of powder, that is, eight pounds: the length thereof thirty three calibers, which make thirteen feet; the level range four hundred and fifty ſteps; the higheſt range one thouſand three hundred ſeventy three ſteps.

The Saker ſhoots a ſhot of five pounds weight, and as much of fine powder: carries a length of thirty five calibers; the range point-blank three hundred and fifty ſteps; by elevation, four thouſand three hundred thirty nine ſteps.

The Falcon carries a ſhot of two pounds and an half, with the like weight of powder corned: the length thirty ſix

calibers; the level range, two hundr
seventy nine paces or steps; by elevation
three thousand three hundred eighteen.

The double Cannon shoots a ball of nin
ty six pounds in weight, of corned powd
fortie pounds. It is to be in length seve
teen calibers; the level range, six hu
dred paces; at the highest elevation
seven thousand one hundred and fo
paces.

The single Cannon carries a shot of
ty pounds, the powder twenty pou
the length, eighteen calibers; the le
range, five hundred steps; at elevat
five thousand nine hundred sixty e
steps.

The Demy-Cannon shoots a sho
twenty four pounds, with twelve po
of powder; the length, twenty calib
the level range, four hundred twenty
paces; at elevation, five thousand seve
ty steps.

The double Culverin, being of Br
its charge of powder amounteth to fo
pounds, when serpentine; of co
powder thirtie five pounds; the we
of the shot, fortie pounds: the length
the Piece, one and thirty calibers; the

el range, one thouſand three hundred ſix-
y four ſteps; at elevation, eight thouſand
e hundred ſixty ſeven ſteps. And theſe
ndes of Braſs double Culverins, I believe
rry the fartheſt of any others: for the
rtheſt range of the moſt renowned Pieces
t ever I heard or read of, hath not
en obſerved to have been much above
ree Engliſh miles; and therefore theſe
ps formerly mentioned, muſt be under-
od of ſingle ſtrides onely, and not paces,
ich are as much again.

Touching the diſpart of great Guns; he
nnot be any true pretender to Gunner-
p that knows it not; it being the diſ-
nce betwixt the circumference of the
ece at the breech or chamber, and that
the muzzle. Hence is it that in the lay-
g of the Piece upon the level range, a
nſideration is to be had, that the muzzle
the Piece be ſo much abaſed, as may
ſwer to the over-thickneſs it hath at the
eech, beyond that of the mouth; that
the concavity or cylinder of the Piece
y be brought to ſhoot in a level line
ht forwards.

Now this diſpart may be taken divers
ys; of which one of the moſt readie

is, by putting a small twig or piece of w
into the touch-hole of the Piece before
be laden, and so to take the precise de
from the superficies of the metal to
bottom of the Bore or concavity of
Piece; and then setting that measure
the mouth of the Piece upon the lo
side of the cylinder, so much of the me
sure as appears above the metal of
muzzle, is to be received for the dis
of the Piece; and so the Gun being
shoot right forwards in a strait line, to
so much abased as may bring the very
of the measure with a direct level upon
mark that is aimed at.

But because even this way of takin
disparts (and indeed much more all oth
ways) will take up more time then can
allowed in a sudden and hot service;
the part of a true Gunner to carry
several disparts of all kindes of Guns
well fixed in his mind and consideration
that without any more adoe, he may
able to allow every kind of Piece the
dispart; that is to say, a sufficient und
lay at the muzzle, to answer the thickn
of the chamber. And this to be done on
by discretion and judgment.

As for the laying of the Platforms whereon great Guns are to be mounted upon their Carriages, in respect they are very essential to the point of their quick use and employment, as well as to their shooting right; some Gunners have advised that the hinder part of a Platform should be raised far higher then the forepart, to facilitate the traverse of the Gun into the Port after its discharge and reverse. But for my part, I shall not wish it to be elevated above one foot at the farthest; for hereby the balls will be caused to fall short, by reason that the mouth of the Guns must needs be swayed downwards in their reverses, and the Piece it self so thrown upon the Port with its own weight, that for the recharge, much both of time and labour will be required to replace it. And besides, if the Enemy have any great Guns in a counter-bearing upon the Ports at the same time, they must needs execute dangerously upon all such as are to attend and manage these Pieces, and are to stay any length of time at or about the Ports. And therefore (as I said before) a moderate elevation of the hinder part of a Platform may be commenda-

ble, but by no means to be over-high nor lofty.

Touching the proportions of neceſſaries requirable for great Guns (with which we will end this Chapter) they are as followeth. To every Piece of Ordnance, of what kind ſoever, belong the Charger or Ladle, the Sponge, the Coins, the Bed; and theſe beſides the body of the Carriage. As concerning the Carriage it ſelf, an eſpecial heed is to be had that the Axle-tree be ſound and ſtrong; that the wheels be perfect and fit, with a convenient quantity of Greaſe or Tallow due unto them, to facilitate their reverſes.

And for the uſe of the Guns, in point of ſhot and powder, the proportion of one hundred great ſhot for every Piece may be held convenient, with an anſwerable quantity of powder; the which is to be proportioned after the ſizes of the Pieces, as was formerly noted.

And thus we have run thorow all the particulars belonging unto the Train of the Artillery requirable for an Army conſiſting of forty thouſand men. It remains only, that we adverti ſe ſomewhat touching the Officers and other attendants due unto the Train.

CHAP.

CHAP. VI.

The Officers belonging to the Artillery: their peculiar duties. Some advertisements for Gunners.

THe peculiar Officers of a Royal Train of Artillery, are these; the General or the Master, his two Lieutenants, the Treasurer, the Pay-master, the Master of the Munition, and a Muster-Master. And these being the prime Officers, are to be nominated either by the Prince himself, or the General of the Army.

The inferiour Officers to these, are the Gentlemen of the Artillery, the which in an Army of fortie thousand men, with the Train of Artillery answerable to it, ought not to be fewer then fifteen: and this proportion may be held according to the number of any Army. The Conductors are to be twelve, the Constables four, the Gunners fourscore, the Porters two, the Farriers two, the Smiths two, the Carpenters in ordinary four; to which, as aids, are to be added the Carpenters extraordinary, with their chief, in number thirtie; the

the Miners, with their Commander, fifti
the Engineers for fire-works, two; th
Engineers for Fortification, two; the Pe
tarders, six; the Provost, one, with hi
Lieutenant and Halberdeers; Quarter-
master, one; Physician, one; Chirur-
gions, two; Apothecary, one; Pioneers
to lay smooth the ways and make them
passable, at least one thousand. And i
there be any passages by water to be ex
pected, it will be necessary to have one
hundred Sea-men, or at the least, men ski
in some reasonable manner to those af
fairs. And for the comfort of all thes
souls, there is to be a Minister of God
Word, to take the charge of them in thi
nature.

Concerning the peculiar duties of thos
forementioned Officers, those of the prin
sort are sufficiently known, and are to b
of ability to oversee all the rest, and as wel
to direct them, as to take and give ac
count of them; and some of them hav
been forementioned. As for the rest, th
charge belonging to the Gentlemen o
the Artillery, is to take the care of all the
Train, and especially of the Guns them
selves in a march; to be always in guard
there-

thereof in the Quarters: and in point of Battel and Service, they are each one of them to take two or three Pieces into his particular care; they are to follicite the Gunners to plie their Ordnance, and to bestow them well and profitably. In the planting of the Batteries they are to attend the General; and being well armed, to advance in all places of danger, and not to suffer him to be over-engaged in his own person. They are to inform themselves thorowly as well of all the Defences of the Enemy, as of the means of disabling them. And lastly, they are to overlook the Pioneers, and such as labour at the Batteries, and to cause them to act their parts diligently and usefully upon all occasions.

The peculiar duties of the Conductors of the Artillery, are to take the charge of the Waggons and Carriages belonging to the whole Train, and to cause them to be ordered according to instructions from the General. They are also to see all the powder and shot to be safely lodged and guarded. They are all of them, every one in his allotted place, to be present at the Batteries, and there to execute duly

and

and diligently whatſoever the Gener
ſhall appoint.

The parts and duties of the Conſtable
of the Artillery, are to lay out and deſcri
all the Ports of the Batteries; to viſit a
the great Guns when they are in the
Quarters, and to ſee them in point; to
ſee them conducted to the Batteries, an
delivered up to the Gunners, with all th
appurtenances belonging to them; as
Coins, Levers, Ladles, Sponges, Ra
mers, Shot, Powder, Wads, Tackling, an
the like. They are likewiſe to take a ſur
vey, and to advertiſe all the due Refreſ
ings of the Pieces, and to make them
known to the Lieutenant and the Gentle
men of the Ordnance. They are to Ca
ber and fit all the ſhot to the bore of eve
ry great Gun, and to ſee them laid o
heaps by every Piece. They are alſo to
have a care that the Gunners be ſufficient
ly fitted with Linſtocks, armed with thei
ſhort ſwords, provided with their Powde
horns and priming irons of all ſizes, and
with their Compaſſes, Quadrants, and
the like neceſſaries. They are alſo upon
the caſting of any new Piece to viſit them
carefully, and to cauſe them to be every

way

way ordered according to commands and directions from the General.

As for the Office and duty of the Gunners, it being generally known what they are to do, and some printed Pamphlets teaching how to do it, I shall not enlarge my self farther that way, then onely to give some few Caveats: And shall in the first place advise, that before any admittance be made of any such, the pretenders be thorowly and impartially examined and put to the Test by the Master of the Artillery, or some able and honest men, substituted to that end. And for the ease of these Substitutes, I shall presume to put them in mind to observe unto their Gunners these few particulars following, which perhaps are not so carefully heeded as it were fit and behoveful in these cases. As,

That in the lading of their Guns (especially if time and leisure may allow) after the second Ladle-ful of powder is conveyed into the chamber of the Piece, and there well settled by the Rammer, care be taken that the concavity of the Piece be thorowly cleansed by a drie Sponge, or convenient Wad; lest by the remainder of some grains of loose powder in the way, there

there accrue some peril by the rowling down of the shot, which may fire by the way, and fire the rest of the powder in the chamber, to the spoil of the Gunner: That in the letting fall of the shot into the concavity of the Gun, when it is charged with powder, an especial care be had that the shot be first well cleansed; and that no piece of any sandy or stony substance be fixed unto it; the which may procure danger, both by lodging of the shot by the way before it get home to the powder, and by hindering the free issue of it upon the discharge: That the Gunner in the lading of his Piece, stand not before the mouth of it with any part of his body, lest he be spoiled by some accidental firing of it, caused by some secret hony-combs, or the like.

And thus much touching the peculiar duties of the prime Officers belonging to a Train of Artillery. As for the rest of them, their very names speak the nature of their duties, and therefore deserve no farther description.

CHAP.

CHAP. VII.

How an Army is to be conducted in a march. Of the Horse and Foot, and great Guns marching in the Van. Of the Horse and Foot and Guns marching in the Battel and Rear. How to march, the Enemy being in view. Of the Artillery, when forced to march apart. Of the conveyance of the Carriages in general. Of the conduction of an Army over Rivers when the Enemy follows in the Rear, or lies on the further side. Of a Bridge for the passing of an Army over Rivers; and of passing by a Ford. The best kind of Bridges for the passing of Armies over Rivers.

WE are now come to the conduction of an Army in a march, wherein, in the first place, it is requisite that the Conductor be well informed of the nature of the Country through which he is to carry the Army; as, whether it be Champion or Mountanous, whether subject to Marishes or not. And especially he ought to be careful to be well provided with skilful and trusty

trusty Guides. And upon the consideration of the nature and condition of the Country, he is to determine the order of the march.

As for example: an Army made up of forty thousand men (which number was formerly propounded) being to march in a Champion Country in order of battel, and the Enemie near, may be thus marshalled: First of all, in the point before the Foot may march five hundred Horse, being Corslets or Cuirassiers, repartited into more or fewer divisions, as occasion shall require: And these are in the nature of a Forlorn-hope, to make discoveries upon all the passages on all sides, and to clear the Woodie places of all ambushments. Next after these, may march two thousand Foot, divided into more or fewer bodies answerable to the Horse in the point: And they are as well to serve for a Second or Reserve to these Horse, as to defend the part of the Artillery marching in the Vanguard. After these two thousand Foot the division of the Artillery for the Vanguard of the Army is to be ordered, with the requisite Waggons of great shot, powder, coins, and the like necessaries;

com

companied with a ſufficient number of Pioneers, to prepare and lay open the ways and paſſages, and to make needful defences. And in this diviſion there are to be of great Guns, four Field-pieces at the leaſt, mounted on their proper Carriages, and attended with one Waggon of powder, and another of ſhot, with all things anſwerable, commanded by an experienced Lieutenant, with ſome of the Gentlemen of the Ordnance and their Gunners.

After this diviſion may march four Culverins, with a Waggon of powder and another of ſhot, with the appurtenances.

After theſe, four Demy-Cannons by pairs, with their Gins, Powder, Shot, and other neceſſaries.

And in the Rear of all theſe may march four whole Cannons, with all that belongs unto them: as, four Waggons of Powder, eight Waggons of Shot, with all things anſwerable. And theſe are the reparti-tions of the Artillery, which are to be ordered to march in the Van of an Army of forty thouſand men.

After this body, and diviſion of theſe Ordnance, three thouſand Light-horſe

or Dragoons are to be ordered to march; and after them, ten thousand Foot. And in the Rear of these, all the Munitions belonging to the one half of the Army; as, Bridges, Planks, Powder, Shot, Cordage, Pallisadoes, Pikes, Shovels, Crabs, Coins as well of Wood as Iron; together with all the Tools belonging to the Carpenters, Smiths, and the like Artificers. All which are to be handsomely lodged in Waggons.

The Victuallers or Sucklers of the moyety of the Army, are to be ordered to march in the next place, with the Hospital, followed with the Carriages and Waggons belonging to the General, and the other Commanders in chief; and after them, that part of the Baggage belonging partly to the Vant-guard, and partly to the Battel.

After these, may march twelve thousand Foot, ordered into small Bodies, having in the Rear of them a Body of Waggons of Baggage, whereof part is to belong to the middle-Guard, or Battel, and part to the Rear-Guard; followed with the Generals Life-Guards, and the suit of the Ambassadours.

34 Thousand Foot

Next again after these may follow the Munitions and Engines serving for the use of the Rear, with the Artillery, Bridges, and the like appurtenances; and after them, eight thousand Foot, making the Cross of the Rear.

Then (as formerly in the Van) may be ordered to march four Cannons, four Demy-Cannons, three Culverins, or Quart Cannons; and lastly, three Field-pieces, with all that belongs unto them, both of Powder, Shot, and other necessaries, with the requisite attendants.

And after them, two thousand Foot, to serve as a defence and coverture to all the Artillery of the Rear.

And last of all, are to march five hundred Horse, answerable to the like number in the point of the Van; who are to bring up the Rear, and to discover that part of the *Campagnia* that way; that so an unforeseen Alarms may be given by the Enemy, to any considerable loss.

And in this order may an Army on all sides be sufficiently provided in a march against all attempts; especially when the Enemy is not in view, but somewhat remote.

But if the Enemy be in view, and an assault to be expected, and the Army nevertheless of necessity to march, and this befall in a large Plain or Champion Country; this order now described is to receive some alterations. For it will be needful to have a large Front of Pikes, being ten or six deep in File, with wings of Shot on each side, the which all together are to make an equal Front; between which Shot and Pikes the Artillery is to march in the intervals. And in the midst, right behind the Cannon, or Artillery, may march two Bodies of Pikes, and betwixt them the Carriages or Baggage. And last of all, in the Rear of all, may be ordered a Body of Pikes, with divisions of Shot on each side, equalizing with those of the Front; and on each side of them, some Troops of Horse, to serve as wings to the Body of the Rear.

And in this Form and Order an Army may both march, and if need be, fight without being disordered or much impeded in its way. For if the Enemy shall charge in Front, this order may be maintained, and receive the Enemies charge be it either of Horse or Foot, by the Fro-

of Pikes; and the Shot in the wings shall opportunely gall them in the mean time, and the Artillery also give them a Salve as they make up; and both Shot and Cannon be well secured, either by the Pikes, if the Enemies Foot shall charge; or by the Horse in the Rear, which are to advance if the Enemie charge with his Horse. And if the Enemy charge in any of the Flanks, it may be sustained by those Pikes which march there, if his charge be with Foot; and withal, he shall be galled by the shot both of Van and Rear; and if his charge be with Horse, it may be opposed by the Horse marching in the Rear, who are to advance to that end. And if the Enemy give on in the Rear, his Foot may be received (with Faces about) by the Body of Pikes which are ordered there, and also be much annoyed by those Shot flanking those Pikes; and the Shot well secured, as well by their own Pikes, as the Pikes in the Flank; and especially by the Horse marching in the Flanks of this Rear. And all this while, the Carriages of Baggage and Munition may likewise be very sufficiently secured, by their being ordered to march in the very center of the Body of Pikes.

But because it may fall out upon occasion either of passages, or ways, of present work and employment, that the Train of Artillery may be forced to march by it self apart and severed from the main Body of the Army; in this case the order and conduction of it may be, that half the Pioneers and Labourers make the Van, marching under their Chiefs and Commissaries, and to be freed from the trouble of any strangers not belonging to their Train, nor with any of their Waggons. After which Pioneers, such Waggons are to march, as carry the Spades, Mattocks, and the like Utensils. Next unto these, the Field-pieces are to follow; after them the Culverins, then the Demy-Cannons, and lastly the Cannons. And thus ordered marcheth the Vant-Guard: and in the very same order may also march the Rear. And after the Cannons in the Rear, may follow all the Furniture belonging to the Artillery; and with it the Bridges, the Boats, the reserve of the Munitions, and especially the Magazine of Powder, the Tents in general, and the Generals Tents. Though true it is, that these are sometimes ordered to march in the Van, that so they may be

in the Quarters, the better to be fitted for receit and entertainment. After these are to march all the Fire-works, all the Ladders, Planks, Chains, Nails, and Sacks, and the like implements. And after them, the rest of the Pioneers and Miners, followed with the Waggons of small shot, with the Store of Lead, with those of the Pikes and Arms to spare. And then the Waggons of the great shot; the which, though properly they are to be ordered to march next after the great Guns, yet in respect that the small shot, and other small parcels, are more subject to the pillage of the Common Souldier, they may best be secured in this manner. And in the last place are to come up the Waggons belonging to the General of the Ordnance, his Lieutenants, with the Gentlemen and Officers of that Train. And then again the Smiths and Carpenters. And in rear of all, the Provost of the Artillery is to march, together with the reader of the Baggage, and the Victuals of the whole Train.

And thus may the Artillery belonging to a great Army march in good safety, in the common passages, and in a large and

open Country, several and apart by it self. And if it shall be thought that the Train will hereby be over-lengthened, it may be helped by dividing it into three parts; but in such a manner, that the Vant-Guard may take the right hand, the Battel the left, equalling the Front with the Van; and the Rear-Guard, with the Ordnance and their appurtenances, to march betwixt them both. And hereby also, the whole Train marching the more closed, shall become the stronger and readier; and every man prepared to know, and fall into his proper rank and place, without the least confusion.

As for the conduction and ordering of the general Carriages and Baggage belonging to an Army when it is to march: It hath been found (as well with the Ancients as Moderns) to be disponed in five several parts: As, either before the Army, when there was a suspicion of the Enemies charging in the Rear; or behind, when the Army was led towards the Enemy; or on the one Flank, when there was an expectation to be charged on the other; or in the center of the Battel, when a charge was looked for on all sides. And thus much

much touching the ordering of an Army in its marching thorough a plain and champion Country: it remaineth to speak somewhat about the conduction of an Army over Rivers, and the like. In which case, if the Enemy be in appearance, or near unto the Rear, it will be fit in the first place to pass over some six or eight Pieces of the smaller sorts of Ordnance, and so to lodge them on the other side of the River, under good covertures, that they may fully discover and play upon that part whence the danger is expected. But withal a large half Moon is to be raised on the opposite side; wherein the rest of the Ordnance are so to lie mounted, that they may play upon all the approaches of the Enemy, and withal flanker their friends, and so favour them in their passage: during the which interim, those Pieces on the further side are likewise to be kept in continual play; that so the Enemy may not, without apparent hazard, approach the Rear of the Army. And if there be any suspicion of the Enemies falling upon the very tail of the Rear, some small entrenchment is to be made, wherein some small Pieces may be lodged, and guarded with

with a convenient number of Musque-teers, who are there to stay and make good the place, until the Army be passed over the River; and then themselves are last of all to take their passage in the Boats, under the favour of those Guns planted at the first on the further side of the River.

And in this manner did that famous Prince of *Parma* make his passage with his Army over the deep River *Wale*, when *Henry IV.* of *France* with his Army followed him a long march in his Rear.

Thus I say may an Army make his passage over a River with Boats, with good security, though an Army of Enemies follow it in the Rear. But if an Enemie lie on the further side of the River, of purpose to hinder the passage of an Army over it, then that course is very approvable, which in the like case was put in practice by that super-eminent Commander the King of *Swedeland* (when *Tilly* was on the further side of the River to oppose him) who to that purpose made choice of a point of land, (so made by the serpentine bending of the River that he was to pass over) the bank whereof, on the side where the

Kings

Kings own Army lay, being a Pikes length higher then was that on *Tillies* side; being also plain and without covert, but the Enemies side Woodie and close. Upon this point the King caused a running Trench to be cast up round about; wherein Musqueteers were so lodged, that out of it they might with good security give fire into the opposite Wood, where *Tilly* with his Army lay in covert. And the same Line or Trench had a great Battery of pikes at each end of it, whereon some Demy-Cannons and Culverins were mounted, with many lesser Batteries before them, for some smaller Pieces all alongst the point; the which also were every where lined and intermingled with Musquetteers. The Bridge for the passage of the Kings Army (for by a Bridge they were forced to pass) was made with Planks and the like materials. The means to support this Bridge, was by certain strong Vessels, whose feet were long enough to reach from the depth of the River. And these Vessels had great stones made fast to their feet, wherewith to sink them: and the length of the Tressels were proportioned to the just depth of the River in every place where

where they were to be placed: so that the Planks upon the uppermost part of the Bridge were to lie almost even with the surface of the water.

The Bridge thus fitted and laid over, the Kings Pioneers were instantly commanded to pass over upon it, and cast up a small Half Moon, with a Pallisado fitted unto it upon that side of the River: the which works were so contrived, as that they did answer in every particular those of the Enemies made for his Musqueteers; and withal served to cover the Bridge, and to latch such great shot as should be made upon the Bridge. And these Pioneers were secured in their workings by the Cannons and Musqueteers of their Party, lodged on the opposite side of the River.

Now the reasons inducing to the choice of the Part, and the manner of the Works, were, in that the crookedness and serpentine course of the River did afford a conveniencie, by flanking it on every side to defend the Bridge, being laid over just upon the point of land; so that it could not be touched by any of the Enemies Batteries, though they were on each side there-

thereof: because by the sudden shouldering away of the bank of the River at either end, none of the Enemies Cannon could bear or beat upon the Bridge, but that either the bullets fell short, being reached by the Half Moon aforesaid, and the heighth of the bank of the River; or else flew quite over the Kings Leaguer, and so did no execution. By which means the Kings Army passed over safely; and being over, routed the Enemy, and killed their General, that brave old man.

And thus you have some rules and advisements about the conduction of an Army over Rivers, by Boats and Bridges. But if an Army be to pass over a River by a Foord, and an Enemy ready to resist on the further side; As it is to be known that that Army runs a great hazard which is thus put to it, so is it not to be practised but upon most urging causes, and then with all cautions possible; among which, I shall propound these following: That in the passage, the most of the Horse be ordered to pass in the Front, and the Foot to march close up after them; for the Horse are better able and provided to sustain the Enemies resistance at their land-

ing

ing then the Foot; who must needs be much encumbred and tired by their wading thorow the water, and especially if the Foord be broad or deep. And besides, the Horse thus marching in Front, shall opportunely discover the condition of the passage, where it is at best and worst; and may also be ready to relieve and succour any of the Foot that by any accident may be endangered in the water. And this was *Cæsars* order in his British War, in his passage over the River of *Thames*; and at the River *Sicoris* in his Spanish War. And if the Foord be deep, and withal of a swift current, it will be necessary to place a great number both of Horse, and other great Cattle, as well above the part where the Army is to Foord it, as also below; for hereby the Horse that stand above, will break the force of the Current; and the Horse that stand below, may succour and take up any such as shall happen to be overswayed by the force of the stream; and withal, add courage to the Souldiers in general to adventure. And this course was practised by *Hannibal* in a passage of his Army over the River *Po*, where in stead of Horse, his Elephants were thus ordered to this purpose.

A ſecond courſe to this end (but requi- more time, though with leſs peril) be, to abate the depth of the Foord, violence of the Current, by dividing River into many Chanels. As *Cyrus* the River *Euphrates*, when he took *lon* from *Baltazzer*; and *Semiramis* ſame River (if we credit *Herodotus*) before: as afterwards *Alexander*. ther hath this practice been altogether ngſt the Ancients; for as the laſt of the Town of the *Berſe*, when the took it in, that ſmall River that through the Town, was ſo diverted, the Town was not only ſtreightned in of water, but all ſuch Paſſages and nes drowned, as might have facilita- Reliefe from abroad, and the approa- upon the Town it ſelf made by far eaſie and acceſſible.

As for the kindes of Bridges proper for conveyances of Armies over Ri- whereof we ſpake of one even now: heſe there are many ſorts; but thoſe in uſe, and indeed moſt commenda- as are made upon flat-bottom Boats unts, whereſoever theſe are to be red. But withal, whatſoever the

Bridges

Bridges be, or howsoever contrived, it
to be received for a Maxime, that when-
soever an Army is to pass over any of them
and the Enemie within the distance
half a days march; no part of the Army
ought to be severed from the main Body
that no advantage may be taken by the E-
nemy, to intercept or come between them
and their Friends. And this holds not
onely in the passages by Bridges, but by
Boats, or Foords, or any other.

And thus you have directions for the
marshalling of Armies in a march. And
these well observed, though an Army
should be forced to march even by night,
need no other additions, save onely that
extraordinary care be had in providing a
sufficient number of able Guides, which
are to be distributed throughout the
whole Army: That a well chosen Watch-
word be given, whereby every Piece and
individual Person may be known one to
another: That many Altes be made, to
hold all the parts together, and no Strag-
glers lost: That the quantity and length
of the march be so laid, and with that dis-
cretion limited, that the Souldiers be nei-
ther disabled by over-long journeys, nor

oppor

opportunities left by ſickneſs; and laſtly, that eſpecial endeavour be practiſed to procure good intelligence of the Enemies proceedings.

As for ſuch marches as are to be made over Mountains, thorow Woods, and Boggie and Mariſh grounds, and the like; it is not to be expected that any certainty can be preſcribed, as touching their forms; for they are to be accommodated to the ground and ways that neceſſity throws them upon; and commonly are extended to great lengths, made paſſable by the labour of Pioneers, but beſt ſecured by vigilancie.

M CHAP.

CHAP. VIII.

Of the ordinary way of ordering a Royal Army to Battel. The Leaders in this order, where to place themselves, and where to be. A censure of the defects of this order formerly described. Of the General placing himself between the Battel and the Rear. The best place for the General in a battel. Of the lining of the Horse with the light-armed, or Musquetiers. Of the long-Bowe, how to be ordered and employed: wherein it is preferable, and hath the advantage of the Musquet. How the Horse are most advantagiously ordered and placed in a battel. The best Forms and proportions of Horse-battels. The censure upon these Forms; and the use of them. The depth that Horse-battels are to be ordered into. Of some words of Command both to Horse and Foot. Of doubling Files and Ranks; and the use of them. A modern form of ordring a Fight; much approved of. Why an Army is thus to be ordered. Objections answered.

IN the last foregoing Chapter we propounded some directions how Armies were

ere to march. In this we shall speak of the
rms of embattelling them to fight; and
l purposely omit many sorts of them, as
g to little or no purpose, save to expres
e cunning of a curious Serjeant-Major-
eral, and to please wanton Spectators;
shall apply my self to such as are most
use.

The customary way of ordering an Ar-
Royal to a Battel, as well Anciently
more Modernly, hath been to divide it
three Battaliaes, or main Bodies:
ese three Bodies have been, and yet
(by some Nations) ordered into one
Phalanx: by others distributed into
ples, or small divisions. Between
divisions, for the prevention of
confusions, they leave intervals or
ces, that by them, and through them,
Battel or Body may the more conve-
ly second the other. And the
th and depth of these maniples are to
e answerable to the Enemies forces,
the nature of the ground; but with
distances; that if the Vant-guard
happen to be broken, it may con-
ly retreat thorow them behind the
; which thereupon is to joyn and

advance, and ſo to renew the Front, and receive the Enemy afreſh. And in the like manner, upon the like occaſion, is the Battel to do behind the Rear. And as one Body is thus relieved by another, ſo may one maniple by another, and the whole without either the advancing or retire of the whole Body.

As for the Leaders of theſe ſeveral Bodies, thoſe of the Vant-guard are to be the Lord Marſhal, with the one half of the Colonels, and half of the Captains, having the beſt men in the Front. And in a retreat, the ſame men are to bring up the Rear.

The Leaders of the Battel, and of the Rear, are to be the other half of the Colonels and Captains. As for the General-liſſimo's place (according to this order) it is to be between the Battel and the Rear; and that as well in regard that it is the place of moſt ſecurity, as that upon all occaſions his advice and command may there be beſt given and taken. As for the Enſignes are to be ordered into the midſt of the Maniples, or ſomewhat near the Front. As for the Artillery, it is to be ordered before the Front, without the

ers of the Vant-guard, upon the moſt ele-
ated ground, that it may the better play
on all parts. Only if the Enemy be expe-
ted to charge on all parts, then is the Ar-
illery to be placed on all parts: and ſuch
ieces as are not for the preſent employ-
ent, to be beſtowed between the Battel
nd the Rear; unleſs the fight be before a
own, or Camp entrenched, and then it is
t either in the Town or Camp; and ſo is
e Baggage likewiſe, and all the unprofit-
e perſons.

But this ordering of an Army for a Bat-
hath not paſſed without reprehenſion
divers particulars.

As firſt of the Phalanx, and indeed all
er over-great Bodies: for it being an
eniable Maxime, that thoſe Troops
in beſt order which can bring up moſt
s to fight at once; it as undeniably
loweth, that the ſmaller Troops and di-
ons muſt needs do this beſt, and there-
are preferable: Becauſe in great
drons or Phalanxes, many men are
wned in the depth of the Files and
nks, and never appear but when the
king of the great Body doth preſent
m to the Butcherie. The great Squa-

drons are also reprovable, in regard th
they are unmanagable, and cannot be pr
served in order but when the ground
large and plain, and withal of an even
perfect level; otherwise they must eit
stand immovable, or upon the least mot
be subject to shaking and disorder; where
the lesser Bodies are scantled for all pl
ces, champion or woodie, level or une
of what condition soever. Again, if tw
or three ranks onely of the great Bod
happen to be broken, or any way disord
dered, the whole Body is equally interes
in the disorder, and hath far less means t
rally it self, then a small maniple: where
on the contrary, if any violence rout o
disorder a maniple, it proceedeth no fu
ther then to that part where it taketh
the disranking of any one of these sm
Bodies, not at all, or very little extend
to the confusion or disorder of any of th
rest: by reason that their intervals and s
parations or distances serve to cut off su
inconveniencies; and yet no way hinde
the general uniting of all their strengt
into one Body. And these are the exce
ptions against great Bodies, and unite
Phalanxes.

The

second exception against the former order, is about the placing of the General himself between the Battel or Middle-ward, and the Rear-guard, as the former order prescribes. Concerning which, notwithstanding many opinions are to be found, and various Presidents; *Vegetius* (in his third Book and eighteenth Chapter) saith, that the General of the Army is accustomed to be in the right Wing, betwixt the Horse and the Foot. And he saith, This is the place which governeth the whole Battel, as from whence all things out are direct and free; so that (saith he) the General resting thus betwixt the Horse and Foot, may best govern them with commands and directions. Now of both these there have been found examples: of the first, *Diodorus Siculus* affirmeth that it was the manner of the *Scythians*, that the King should be in the middle of the Phalanx. And *Arrian* (in his first Book and thirty sixth Chapter) affirmeth that *Darius* took the same place. And also (*cap. 4. Sect. 63.* and *67.* and *cap. 8. Sect. 66.*) giveth the middle of the Battel to the General. And *Plutarch* reports, that *Timoleon* in his fight against the

Carthaginians placed himself in the very midst of the Battel.

On the other side, we have it in *Xenophon* (*Cyrop. lib. 7. fol. 176.*) that *Cyrus* in his Battel against *Crœsus*, took his place in the right Wing, betwixt the right hand of the Battel, and that of the Horse that were ordered in the Wing. And *Alexander* the *Great* (though bred amongst the Phalangers) did the like in most of his Battels. And for the Moderns, I find the valiant King of *Sweden* at the battel of *Lipsewick*, in the right Wing, in the Front of some Brigades of Horse; and at the battel of *Lutzen*, in the very Front of the right Wing of his Vant-guard, consisting of six Horse-Squadrons, lined with five Bodies of Musqueteers.

For mine own part, as (amongst these various opinions) I cannot approve of the Generals placing himself in the midst of the Middle-guard or Center of the main Body of Pikes, in regard that it neither expresseth valour, nor can he see about him to discover any advantages or disadvantages, and to direct accordingly; so on the other side, I shall not advise to have any General to be over-hazardous in adventuring his

person in the very heighth of the Front, especially when the Army falls up to the charge, lest the loss of the best blood of that body, procure the languishing of the whole. And thus I am sure was lost at Munda the best General of the World, though (to the wonder of the World) that headless Army got the day in a fury.

In mine opinion therefore, though a General may place himself (at the time of battel) in the right Wing of his own Middle-guard, yet ought it to be with the Brigades of Reserve: and by no means in the very Point or Post of the Van. For questionless it is a great errour in a General, when his courage shall not suffer his judgment to distinguish betwixt the duties of a common Carabine and the General of an Army.

As for the lining of the Horse with Musquetteers, or at the least with the light-armed, (whereof we gave a touch before) it was not uncommon with the Ancients. And it was always held, that Horse being thus charged, could not resist both. And we have a notable example hereof in *Hirtius* (*de Bello Afric.*) when *Cæsar* having a march

a march to make, and but a small numbe
of Horse with his Legionary Souldiers,
was set upon in his way by the Enemie,
abounding with Horse, and light-arm
Numidians amongst them. And when *Ce-*
sar's Souldiers fell out to charge, the Ene-
mies Horse retreated, and the Foot stood
fast, until their Horse with a short wheel-
ing about, returned upon the Rear of the
Enemy to their rescue: by which way of
fight, *Cæsar* himself confessed, that he was
so perplexed, that he found no other
course to save himself, then to recover
some hills of shelter near at hand; and
that had it not been for them, he must
have fared worse. And for those Musque-
teers wherewith the King of *Sweden*
Horse at the Battels of *Liptzwick* and *Lu-*
zen were lined; they were so shadowed
from the Enemie by these Horse, that
when those of the Enemies came up to the
charge, they did a very great execution
upon them before they were aware, and
were a main means of the attainment of
those two famous Victories.

Nor can I apprehend any objection
that may (with any reason) be made a-
gainst this form of order; since hereby

these

these Musqueteers are well secured by their own Horse, and the Enemies Horse in extream danger to be terribly galled by these Fire-weapons before they can get up to charge home, or so much as to approach within the reach of their Pistols. And therefore it seemeth to me very worthy both of acceptation and imitation.

And these ways of lining of the heavy-armed with the light-armed, have not been found to be practised with the Horse onely, but with the Pikes also; and that as well with the Ancients, as those of our time. True it is, that these light-armed with the Ancients, were the Slingers and Darters, and were variously ordered; sometimes before the Front of the Phalanx, or main body of the Pikes; sometimes on the Wings, sometimes betwixt the Files of the armed, fronting in a right line with them; sometimes in the Rear of the Battel of the Pikes (and of these Aelian makes mention, *chap.* 42.) and sometimes also in a quite contrary way, as when these light-armed were drawn into the midst of the battel it self. As for the usual Modern ways, they are (as all know) to place and order the light-armed men,

which

which are the Musquetteers, in the Wings and sometimes in the Front of the Battel of Pikes. And the Swedish Discipline introduced an intermingling of the Musquetteers with small bodies and maniples of Pikes; the which, nevertheless, were so bestowed in the Sections and Divisions of those bodies, as not to be discovered by the assaulting Enemies until they felt them.

And surely (if the Garb of the Time would allow it) I see not, why some of our long-Bowe-men (which, as the World knows, have been the fame of our Nation) might not be employed in these services, mixed together with our Musquetteers; nor why they should not execute to great purpose, especially upon Horse. And if some of them were ordered in the very Rear of the body of Pikes, they would not onely be shadowed from the view of the Enemy, but might be drawn up without any confusion or trouble to any other part, as occasion should require; nay, standing firm in the very Rear of all, they may, questionless, do very great service, (and especially before the Armies join) by delivering their Vollies of Arrows over

all

that ſtand before them; the which, as many of them as fall upon any Horſe-Troops, and with their barbed heads ſtick and hang faſt where they fall (as they will certainly do) they cannot chuſe but cauſe a mighty confuſion: nay, their very ſticking in the ground, in the way of a Horſe-Troop, muſt needs dazle their ſight, and amaze them. For I am clearly of their opinion, who hold that the long-Bowe is preferable to the Muſquet in theſe reſpects: In that many ranks of Archers, nay all of them, ſhould they ſtand ten in depth, may deliver their whole Vollie at once; whereas the Muſquetteers can do this with one rank onely at once; or at the moſt (after the Swediſh way) with three: as alſo, in regard that the arrow ſtrikes as well in deſcent, as at point-blank, the bullet onely at point-blank: In that the Bowe may far better be uſed in wet weather then the Muſquet, and is withall ſooner to take, whereas the Muſquet oftentimes fails in taking fire: In that the Bowe is undoubtedly more prevalent againſt the horſe then the Muſquet; for though a horſe be ſhot thorow with a bullet, he is yet for a while able to bear his Rider.

Rider, and no do service; but if a barbed arrow do but hang in any part of a horse he becomes altogether unmanageable, and so unserviceable. And lastly, in that (as aforesaid) though the arrow should miss its mark, yet its very sticking in the ground (and especially when a whole Volley doth so) proves not onely terrible to the horse, but cumbersome both to horse and man; and that in all grounds, and at all assaults.

I know well, that in some particulars the Musquet also is preferable to the Bowe; as behind a Rampart, and thorow loop-holes; and in that a good Musquet duly charged, will carry point-blank to the distance of twelve score, whereas an Archer (especially now adays) can scarce shoot so far at random. It may be also that the Musquet is more terrible, and scareth an un-accustomed man, more then the Bowe. But for all this, I know not but that they may both pass in Cameradeship; nor do I know (all things considered) why the new invention of the Pike and Bowe united, should find so little entertainment amongst us, as it hath done; unless it be that now adays we have given over our selves

[illegible] to take up all things upon meer trust [illegible] then reason, though evidenced by [illegible]monstration.

But because we have spoken much of [illegible] lining of Horse with Musqueteers in [illegible] battel, it may well be expected that [illegible]what should be said touching the [illegible]ing and ordering of these Horse; and [illegible] this I find the common and usual way [illegible], to dispose them in the Wings. Thus [illegible] *Alexander* at his passage over the Ri[illegible] *Granicus*, as *Arrian* recordeth, (*lib.* 2.) [illegible] *Curtius* (*lib.* 3.) So did *Antigonus*, as [illegible] *Siculus* hath it (*lib.* 19.) And so [illegible] in his battel against *Demetrius*, as [illegible] same Author saith in the same Book. [illegible] in brief, all the *Macedonians* and [illegible], unless some especial cause urged [illegible] alteration, did the like. And so the [illegible] also, since them. And indeed so [illegible] continued almost in all ages, even [illegible].

Nevertheless, I hold it not amiss, upon [illegible] occasions, to place and order some [illegible] of Horse in the very Rear of the [illegible]; provided that some large inter[illegible] be left in the divisions of the bodies [illegible] the Foot, that thorow them these

Horse

Horſe may be drawn up to charge, wh
need requires: for hereby theſe Ho
ſhall both be ſhadowed from the Enem
ſight, and may be drawn to a charge
any part of the Army whereſoever. A
of this alſo, we find both old and new e
amples; as of old in the War betwe
the *Romanes* and *Spaniards* mentioned
Livie (*Cecab.* 3. *lib.* 9.) wherein the *A*
ſetanes, the *Illergetes*, with ſome other
are ſaid to leave broad intervals betw
the Wings and the middle part of the
Battel, to give paſſage to their Horſe
come up to all charges. And I find
like likewiſe to be practiſed by the K
of *Sweden* in the battel of *Liptzi*
where he ordered divers Reſerves
Horſe in the Rears, whence they we
drawn up, and did very good ſervice
wards the atchievement of that famo
Victory. Sometimes alſo it hath be
found, that the Horſe have been order
in the Front of the body of Pikes. But
believe that this was onely done when th
ſide did much exceed the other in numb
and ſtrength of Horſe, and when the
was ſome diſtruſt in the worth of the Fo
As in that battel between *Eumenes* a
Cr

Craterus, mentioned by *Plutarch* (in *Vita Eumenis*) where *Eumenes* placing the Horse before his Foot, did it (saith the Author) because he held them the prime of his strength; and therefore put upon them the hazard of the day: and herein shewed himself both in counsel and action, a brave and well-experienced General.

As for the best forms and fashions of Horse-battels, the most ancient, and then the most common, was that of a *Rhombe*. And this was in special account with the *Thessalians*, (witness *Ælian*, *cap.* 18.) who were reckoned for the best Horse-men of *Greece*, (as *Xenophon* reports them in his *Hist. Græc. lib.* 7. 644. *D.*) and held that account to the time of King *Pyrrus*. And for this form, these reasons are given: That it was fittest for all Encounters, because the Horse thus postured, were ready to turn Faces about any way, upon all occasions: That it could not be surprised in Flank or Rear, as having the best and choice men in the Flank, and the Commanders in every point of the *Rhombe*.

But the practice of our days consists

moſt in the ordering of the Horſe into ſquare Bodies. And the grounds hereof are, That theſe forms are with moſt eaſe and facility to be put in order: That they are apteſt for the joynt movings of the Horſe: And that the Commanders do joyntly charge the Enemy in the Front; which in no form can be done but this.

To ſpeak freely of both theſe forms, I opine with them who hold that the *Rhombe* in point of piercing, and artificial breaking into the battel of an Army, is the moſt proper, (unleſs perhaps that a Wedge be in the ſame caſe to be preferred;) for being narrow and pointed in the Front, it naturally forceth a paſſage with the point, and withal maketh way for the reſt of the Body to follow; and ſo without much ado, piercing farther and farther, it muſt neceſſarily hazard the breaking of the adverſe Battel, and ſo diſperſe it, that afterwards execution may be done at pleaſure. On the other ſide, the ſquare Horſe-battel in reſpect of doing execution, and violent overthrowing of all in its way, is to be preferred before any other; for it bringeth more hands to fight, and beareth down all things before it.

So that I see not but both these forms Horse-battels may be held in use, even these times; the one for entrance, the for bearing down; this for a tho- execution, that for a dispersion.

But there is one thing more in the or- ing of Horse-battels, of especial obser- ion, and that is their depth; of which his opinion was (*cap.* 12. *sect.* 40.) a Horse-battel was onely to be four epth; and his reasons were, that ing Lances) the fifth was unprofita- because from thence their Lances not reach to the Front; neither be) can Horse (as Foot) with their ness or depth, thrust one another for- from behind; and therefore in his on, the number of four was suffici- for the depth in File. And yet we find *Lybius*, that the Horse was for the part in his time, ordered eight in . But this was in the Age of Lan- In our now Pistol-world, I finde the of *Swedens* Horse which were order- the Wings of the Van at the battel *Lipzwick*, to be four in depth: And that were in the Wings of the Rear, five in depth; and so likewise were

Tillies Horſe. In the battel of *Lutzen* the King of *Swedens* Horſe were in no place above three in depth; whereas *Wallſtein's* Horſe were every where ſix.

It ſeems therefore, that there can be no certain rule touching this particular; but that it muſt be varied according to the number of Horſe, and the neceſſity of enlarging the fronts; ſo that *Ælians* proportion may be received with moſt approbation for the general; which is, to double the number of the Front, to the number of the Flank; and as the number of the Troop ariſeth, to enlarge the length of the Front and the depth of the Flank proportionably one to another: yet would I not have it to exceed the number of eight at any time in depth, nor under four; for the one extream loſeth the fighting of ſome hands by reaſon of their over-depth, and the other is over-weak to ſuſtain a great ſhock.

I ſhall add one thing more, which may concern both Horſe and Foot, concerning words of Command; touching which I find, that it was the ancient uſe, (vide *Polyæn. lib. 4. 217. ſect. 2.*) that when Horſe were commanded to turn to

hand, the word of Command was, Turn to the Staff; that is, to that ſide where the Staff or Lance was then carried: and when they were to turn to the left hand, the word was, Turn to the Reins; becauſe the Reins were born in the left hand. And ſo to the Foot, the words of Command were of old, To the Pike, when they were to turn to the right hand; and to the Target, when they were to turn to the left. Now the preſent words of Command to this purpoſe both to Horſe and Foot, are, To the right hand, To the left hand; To the right hand about; To the right hand as you were; To the left hand about, To the right hand as you were.

Touching which, I ſhall onely offer it to the conſideration of our preſent Commanders, whether it were not ſafer in this caſe to take up ſome other words of Command, then thoſe that are now in uſe. And that in regard that our preſent words of Command, To the right hand, To the left hand, are ſubject to be miſtaken, as being of too alike ſound, and may very well be taken one for another. And all miſtakes of this kind muſt needs be very disadvantagious, and carry with them much

of peril, as all judicious men will read
confess. So that we may do well to
herein presidented by our Sea-men, w
in their Sea-words of Command for
Condeing of a Ship, use not to say L
board the Helm, but Port the Helm, wh
they would have it to be put to the
side of the Ship; lest by the affinity of
sound, it should be taken for Star-bo
the Helm, which is to have it to be put
the contrary side, and that in many ca
to a certain ruine. And this also may
the better perfected by *Ælians* rule, th
the particular be placed first; as to
to the Horse, To the right hand turn yo
Face, when you would have them tum
the right hand; To the Reins or Swo
turn your Face, when they should tum
the left hand. And to the Foot, to
To the right hand turn your face, wh
they are to move that way: and To t
Sword turn your faces, when you wo
have them move to the left hand.

As for the words, Double your Files,
Ranks, or Length, or Depth: The do
bling of the length is to be used, either
over-wing the Enemy, or to avoid t
over-winging of the Enemy; or else
mak

make the fairer ſhew and outſide of an Army; whereby to diſ-hearten the Enemy, withal to deceive him. The doubling of the Files or Depth, to be done either in reſpect of the ſtraitneſs and narrowneſs of the place, or for the better ſtrengthening of the battel, or to draw an Enemy to fight when you have the advantage of him.

And thus have you the Genuine uſes of both theſe kinde of doublings, as well of length as depth; wherein, nevertheleſs, good heed is to be taken, that in doubling of the Front there be not given ſo much length that it fail in its due depth; nor ſo much depth, that the Front be over-narrowed, and ſo ſubject to be environed: the want of length and depth in an order-ed Army for a battel, being equally diſad-vantagious and reprovable. For when it is embattelled over-ſhallow, it can endure no ſhock; when over-deep, it is eaſily encompaſſed, and in danger to be utterly broken that way.

To comply therefore with all theſe ad-vantages, and provide againſt the defects, I ſhall deſcribe a modern form of embat-tling an Army for a fight, that hath re-

ceived a very general approbation, and deserves as general an imitation. And it is in this manner (supposing the Army to consist of twenty thousand men, all other numbers being to be proportioned accordingly:) in the Front of the Van are to be Wings of the best Troops of Horse, to be somewhat advanced before the main Front of the foot of the Van: These Horse to be divided into several maniples or small bodies, and the Divisions to be well lined with Musqueteers. The Van of the Battel or Middle-Guard to be ordered into four Brigades of Pikes and Musqueteers, the middle Front of every Brigade being to be somewhat advanced; before which part the Artillery is to be placed; and to secure it, three divisions of Musqueteers, with some Troops of Horse near unto them, are to be ordered immediately behinde these four Brigades: and all these bodies are to be well lined with Musqueteers in every one of their Divisions: and for a strength to these also, some Cannons may be placed in the Rear of them all. In the Rear of the right Wing, is to be placed twelve Troops of Horse, and as many in the Rear of the left Wing.

the Rear of the main Battel or Mid-Guard, it is to be ordered into three Brigades of Foot; the which are to serve for a Reserve of that Body. And every Middle Front of each Brigade to be somewhat advanced, as those in the Van. And in the Rear of all these, two half Regiments of Horse, of five Troops apiece.

Now the grounds of this order of embattelling of an Army for a battel, are these: That every part of it consisting thus of several maniples, and small Bodies, if any one of them should happen to be broken, yet is there not so much danger any thing near, as when an Army is ranged into great Battalions; because they may with far more ease (by reason of the facility of their motion, as being little Bodies, and the small piece of ground which they take up to move in) be rallied and supplied, than a main great Body can possibly be. Secondly, In that though the thinness of the Files (which are said to be the best, when they are not above six in depth) may not perhaps be able to endure any main shock or force; yet by this order shall more hands be brought up to fight at once, than can be in great Bodies;

and

and ſhall alſo be more able to do execution on the ſudden. Thirdly, In that in this order every part ſo fenceth, flankers, and backs one another, and is ſo apt to ſecond, relieve, and ſupport one another; ſo ready either to ſend out ſupplies, or to receive them, as that the whole Body looks like ſome Maſter-Piece of Fortification; and indeed, becomes ſo, having (as it were) its Baſtils, Towers, Bulworks, and ſeveral Retreats. So that though many ſeveral and individual perſons may chance to be laid on the ground, yet ſhall the whole order be preſerved from being dis-joynted, and much more the great Body of the Army from being routed.

Thus I have laid down a forme of ranging an Army for a Battel, which ſome have ſtiled Admirable. And yet I muſt tell you, that it hath not been free from objections; and thoſe made by ſome old Souldiers, or at the leaſt, Souldiers of elder time. For firſt, they ſay, that in reſpect that private Companies cannot hold long in their full ſtrength and due numbers, being in the Field, by reaſon of ſickneſs, ſlaughter, and the like accidents;

that

that thus to order an Army into ſmall bodies, and as it were into private and particular Companies by themſelves, their Vollies of ſhot can neither be great, nor the harm great that the Enemy ſhall receive by them. But to this it may be anſwered, that we ſpeak not here of the ordering of particular Companies by themſelves, but of ſmall Bodies made up of private Companies, as cauſe ſhall require: ſo that though it be true that the ſtrength of the Army may be weakned by theſe accidents of death, or otherwiſe, yet the diviſions may ſtand faſt and full: Though it is as true, that there will be fewer Diviſions; which makes nothing againſt the order in general.

Secondly, theſe Objectors ſay, That the mixing of the Shot and Pikes together in diſtinct Companies, weakneth and diſtracteth the whole Body: for (ſay they) by caſting off the Shot in this manner, the intervals and ſtreets are made ſo empty and wide, that the Enemies Horſe are enabled to break in and diſorder them. And if the Shot be not thus caſt off, but kept cloſe, and ſo made to diſcharge in Counter-march, they are hereby apt to be thronged

toge-

together by the Pikes; and the distance of place being taken from them, the use of their weapons also must needs fail them, and so all come to ruine.

But to this Objection also it may be answered, That all this may be helped by the uniting of these bodies into one, as shall be found necessary: nor need these Shot be so removed from their Body of Pikes by any casting off, but that they may be reunited with ease on a sudden; nor shall they be thronged by their Pikes, or deprived of their distances of place; because they shall not need (holding this order) to discharge at all in Countermarch.

Thirdly and lastly, it is objected against this foresaid order of embattelling an Army into small Bodies, that in what manner soever the Shot be employed, there must needs be a weakness in the Rear, so that the Enemies Horse may break in at pleasure. But to this it is again replied, that the uniting of the small Divisions being carefully observed, assureth against all these assaults and perils: And that all these objections fall rather upon the embattelling of a single Regiment, then the form-

ming of a Battel or Army made up of
n or twenty thousand men. And thus
uch of the ranging and ordering of Ar-
ies for a fight: we shall in the ensuing
Chapter give some Advertisement touch-
g the Dislodgings, Retreats, and En-
enchments of a Camp-Royal.

CHAP. IX.

Observations upon the certainty of Orders for dislodging a Camp. Of Retreats, when to be made in a Campagne, and when to be made in narrows: How to be ordered, and the Reasons. Of an Army forced to lodge in open Fields. Of the encamping of an Army. Of the forms of Trenches. Of Guards due to Entrenchments, and where to be placed. Forms of Entrenchments when an over-powerful Enemy is very near.

Being in this Chapter to speak of the Dislodgings, Retreats, and Entrench-ments of a Camp-Royal, we will first be-gin with the first of them.

An Army being to dislodge, and the Ge-neral

neral having given notice hereof to the Lord Marshal; he the Marshal is to do the like to the Quarter-master-General, and the Quarter-master to the Provost-Marshal-General, and he to the Quarter-masters of the Regiments, and they to the Colonels and Captains, and those to their subordinate Officers, who are to warn the common men.

Now in the first place the Provost-Marshal-General is to give order to the Provost-Marshals of the Regiments, that they give Command to the Pioneers, Sucklers, and the rest that are not Souldiers, to be in a readiness, and employ themselves in the filling up of the Trenches that they are to forsake, and in the firing of the Quarters (and this to be done whilest the whole Camp are putting themselves into their Arms;) that so nothing may remain entire, to give relief or any way to serve the Enemies turn after they are forsaken by themselves.

This being done, and the one half of the Scouts sent before to make discoveries, that Corner or Wing of the Army which lay next to the Enemie, is first to stir, seconded by the Body of the Vaunt-guard.

Then

then ſucceedeth the other Wing, and then marcheth the Battel, followed by the Artillery and Baggage, covered with the Rear-guard, cloſed with Troops of Horſe, having withal as Scours to the Army, and to beat up Stragglers.

This hath been received for a general Order of diſlodgings. But ſurely this cannot be ſo preciſely and punctually obſerved, but may and muſt ſuffer alterations according to the quality and condition of the Country and Ground that the diſlodging is to be made in: for hereby an Army may ſometimes be forced to march in broken ranks, at another time have liberty to march in an entire body; neither can the place of the Baggage be ſo aſcertained to be either before or after the Middle-guard, but that in ſome caſes it may better be ordered in the Flank of the Army: provided always that Flank be the ſecureſt part: for the place of moſt ſecurity is always the moſt proper for the placing the impediments. And thus much touching diſlodging of an Army.

As for the ordering of Retreats, it is to be done in Battalia if the ground will allow it, when the Enemy is in ſight, and

in

in Front. And in the first place the Rear is to march off; and whilest they turn faces about from the Enemy, the Van and Battel are to stand their ground, as ready to receive all charges. This done, the Battel or Middle-guard is to move, and in all points to observe the orders and manner fore-practised by the Rear: and in the mean time the Van to make a stand; and when the Rear and Middle-guard have again made Alt, the Van it self is to retreat, and to have the Wings of the Horse at the same time to move and flank with it. And lest the Enemy should charge upon the Rear, some numbers of Musqueteers, with some Cornets of Horse, are to man it. And thus may a whole Army maintain and continue a Retreat, so long as the Enemy shall continue in a pursuit, and the ground be a Champian.

But if an Army in the retreat, the Enemy following, be to pass through any narrows, as upon Dikes, thorow Lanes, or Bridges; in this case, assoon as any considerable part of the Foot is entered any of these streights, the Horse are to pass in the Rear of that first Division: and in the room whence these Horse departed,

ong ſtand of Pikes well flanked with
uſqueteers are to make it good againſt
e Enemies Horſe, and to ſtand firm and
ep their ground. And for the bringing
f of theſe Pikes and Shot, it will be ne-
ſſary that ſome Breſt-work, or half
oon, or both, be caſt up at the point of
e entrance upon the narrow, wherein
uſqueteers are to be lodged; and if
ſe require, ſome ſmall Field-pieces, as
kes or the like, to beat upon the Ene-
at his approach, and make good the en-
nce. The which ſmall Pieces may be
ught off upon the Narrow in the Rear
all, upon their proper Carriages, with
it muzzles towards the Enemy, and
on all occaſions to be guarded and
ured by the Pikes, in whoſe Rear they
treat.

Now the grounds and motives of this
Order, are, That though during a retreat
a champian and open ground, the Horſe
y be ordered to come up and retreat
the Rear; becauſe with a ſmall wheel-
about, they may advantagiouſly charge
Enemies Horſe in Flank, if they
uld attempt to fall on upon that Rear;
d the Rear of the Foot alſo, with faces

about, may the whileſt receive the Enemies charge with the Body of their Pikes, and gall them with the Shot wherewith they are lined: Yet when an Army is to paſs in any ſtreight, theſe Horſe ſhall then beſt ſecure themſelves by wheeling about into that Rear of the Diviſion of Foot which hath firſt entered upon that ſtreight; for hereby a ſtand or alt may be made good againſt the charge of the Enemies Horſe by the reſt of the Pikes which are not entered upon the ſtreight; and theſe Pikes brought off under the favour of the Field-pieces and Muſqueteers in the half Moon, and behind the Breſt-work formerly mentioned; and they themſelves brought off under the protection of the laſt Rear of Pikes, and the Drakes, or Field-pieces in the Rear of them; to be ſecured partly by their own beating upon the Enemy as they retreat, and partly by the laſt Reſerve of Pikes and Shot, when he chargeth home.

And the want of the making uſe of this order in our retreat at the Iſland of *Re*, was the viſible cauſe of our miſcarrying in it. For all the while we marched in open ground, though all our Horſe re-

treated

treated in the Rear of our Foot, and the Enemy both in Horse and Foot doubled our number, yet meddled they not with us, but made alt when we did, and marched when we did. But our Foot being got up to the narrow of the Dike betwixt the Salt Pans, and our Van and Middle-guard well entered upon the Dike, and the Front of our Rear so close upon with them, that our Horse could not wheel to put themselves betwixt the Rear of them, and the Front of our Rear; the Enemie did then furiously, French-like, charge with their Horse upon ours, and being by far the greater number, instantly routed them: forcing such of our Horse as sought their safety by flight, to break in upon our own Foot, to their utter disorder; and the rest of our Horse, that could not do so, were all either taken or slain. The execution likewise upon our Foot became hereby very great; and the greater, by reason that there were no kindes of Works cast up to command the entrance of the passage upon the Dike: So that the Enemy was emboldned to charge home all alongst the way of our march, upon the very Dike it self, even to the

very Bridge that we were to paſs over; where alſo, by reaſon of the improvidence in making it without rails on the ſides, our men in the haſte and terrour of their diſorder, thruſt one another into a Creek of the Sea, and were there ſmothered in the water and mud. And here it was that we loſt the moſt and beſt of our men.

Now becauſe in theſe Retreats it may fall out, even with the moſt provident Generals, that an Army may be forced to lie and lodge in the open Field very near unto an Enemy; it will not be amiſs to propound ſome courſes touching this particular. And in this caſe it hath been practiſed, that every Regiment ſhould lie down and lodge in the very ſame order that they marched all the day before, with all their Arms by them: the Pikes to ſtick up an end cloſe by the bearers as they lay; and every Rot or File (that is, every ſix) of Muſqueteers, to bring their Muſquets to their Rot-maſters or leaders of their File, who were to ſee them ſet with their mouths upright, and ſo bound together with a piece of Match, that they might ſtand ready at hand upon all alarms. As for

the perſon of the General himſelf, and the Officers of the Field, they were to beſtow themſelves in their Coaches, or the like; and the private Captains to make uſe of ſuch kinde of frames of wood as in the Low-Countries are termed Horſes, being very proper for that purpoſe; and of which, it is good for every Captain to have one. Touching the Horſe-Regiments, every man was to eaſe himſelf and his Horſe, by alighting, and reſting himſelf on the ground, and by feeding his Horſe near unto him: And in this poſture to take repaſt and ſleep; and ſo to attend the light of the enſuing morn, for the purſuance of their intended retreat. And thus having given ſome notes touching the Diſlodgings and Retreats of an Army, we will finiſh this Chapter with ſome Rules touching Incampings.

In theſe Incampings the General Quarter-maſter is eſpecially to obſerve theſe particulars following: That friends (as near as may be) be lodged by friends; and this as well for preventing of tumults, as the faithful ſeconding one of another: That ſuch Horſe as are moſt unready and unfit for ſudden occaſions, be covered

with Foot for three parts of them at least: That no impediments, as Merchants, Victuallers, Artificers, be lodged amongst the Souldiers: and That the Camp be well entrenched.

And because an Army, be it never so well entrenched, lying thus, will be forced to send Forragers abroad, it is a necessary Providence, (and especially if the Enemy be any thing near) that some convenient number of Troops do by turns stand by their Arms, that they be always ready to answer all alarms; which is greatly furthered, and a Rescue the sooner and with less dismay performed, when some Captains are thus found always in point and ready to march at the first word of Command. And hereof we have a punctual example at *Cæsar's* first landing in this our Island. For he having received a great loss in his Shipping by a Tempest, the which encouraged the Britains so much the more to oppose him; the which himself also suspecting, he caused his Army to be strongly entrenched: And sending out one of his Legions in its turn to fetch in Corn, the Enemy on a sudden assaulted it; the which being discovered by

an

unusual dust, *Cesar* instantly took two Cohorts (which might amount to the number of 720 men) which were in station before the Ports of the Camp (commanding that other two should supply their places) and led them on to the succour of the Legion that was abroad; the which he found in a dangerous fight with the Enemy: And without this oportune supply, had in all likelyhood been cut off; and was thus relieved.

As for the Forms of Trenches, they are to be regulated, either by the advantage or disadvantage of the site. Their flanks are to be distanced about seventy Paces one from another; Their depth, bredth, and heighth, according to the time and intention of stay in that place, and the exigence of an Enemy: In them entrances or passages are to be laid out for Horse, Foot, and Carriages: And to be covered with Ravelins without, and Bars within. And these Trenches are to be furnished with convenient Artillery, so ordered and mounted, that being well flanked, they may command the *Campagna* round about. And besides all this, the Camp is to be secured by strong and vigilant Guards;

some whereof are the main Guards; the rest the pettie Guards. One main-Guard is to be near the Generals Quarter, and the Commander thereof is stiled, The Captain General of the Watch. Another main-Guard is to be in every Regiment, which hath likewise its Captain; by whom the Rounds are laid out, and the Rounders sent abroad to visit the Guards of the Companies: and out of the Main-guard by the Generals Lodging, the Rounders are taken out to visit all the petty Guards.

And because it may be dangerous when in one Discipline two Rounds meet in their Circuits, that they which speak first in taking the Word of the other, may hereby help the Enemie to rob the Word; To prevent it, it hath by some been thought a provident course, that the two elder Rounders should make an exchange of their Companions, and so proceed to finish their Circuit without giving or taking the word of any Round at all. The which I onely offer to our present Commanders to take into their consideration.

As for the petty Guards, they are of two sorts, for either they consist of many

persons

sons, and are then termed a Corps du Guard; or of one single man, who is called a Centinel. A Corps du Guard may either be of Horse (which is a Guard without the entrenchments of the Camp) or of Foot, who watch within, before or at the Ports of the Trenches, or any where else where the Serjeant-Major shall hold it fit. In the setting out of the Centinels, it is to be obserued that they be not placed over-far from any Corps du Guard, lest by being surprized by an Enemy, the secrets of the Army be discovered.

And because it cannot chuse but be full of hazard, and subject to many casualties, for an Army to be brought up any thing near to an over-powerful Enemy; a General being to be exceeding circumspect, and sure of some advantage also, either by the place, or his own virtue that shall adventure to do it: If nevertheless necessity force hereunto, it is a fit course for such an Army to encamp and entrench it self round about some good Town being our friend, especially if that Town be withal a place of a pass, and by its situation and vicinitie unto some other parts in amity with it, any other way advantagious;

for

for by this means both the Army and the Town may be well secured, and by the pass both of them continually supplied with Victual and Munition.

As touching the fashion and form of the entrenchments to be practised in this case: In the first place the ground and circumvallation of the utmost lines are to be well viewed and considered, whether it be capable for the whole Army to lodge in. And all such higher grounds or hills as are any way near unto this circumvallation, are to be taken in and included, to prevent the Enemy from planting his Cannon upon them, and so to beat upon the Leaguer, or into the Town. These entrenchments also are to be conveniently stored with Bastions, and guarded with Flanks. And if there be any River passing thorough the part, both sides thereof are to be commanded and well secured with Forts, or at the least Bastions: And (if it may be) the whole Work to be joined to some Fort erected within the Town it self, or at the least some Suburb thereof. And all these to be well defended with half-Moons and Horn-Works: The Suburbs themselves likewise (especially those that lie

moſt in the Enemies way of approaches) ing to be entrenched and guarded with me Works anſwering one unto another, d joining one upon another. The main igh-ways alſo leading unto the Town e to be ſecured by ſome Forts, and ſome teries to be erected here and there be-een them, furniſhed with good Or-ance to play upon all the Avenues of e Enemy. As for the Graft or Moat en-compaſſing the whole circumvallation of e Trenches, it ought to be twelve Foot the bredth, and eight in depth; and at e head-Works, eighteen feet in wide-ſs, and twelve deep.

And thus much concerning the Incam-ings, Quarterings, and Entrenchments an Army; purpoſely omitting the ordi-ry ways of lodging a particular Regi-ent; which is onely the diminutive of e other, and after the common way ommonly known. And thus we con-ude our ſecond Book.

A DISCOURSE OF The Requisites in making of a War by Land.

Book III.

Of Discipline.

CHAP. I.

Of Considerations to be taken before the entrance into a War, in point of Strength, Treasure, Country, Shipping; also in point of confederations, and the true justness of the War. Considerations to be taken in a defensive War. How a defensive War may be best made and maintained.

WE are in this third Book (according to our Method propounded at the first) to give some Animadversions about the third Necessary requirable in the making of a War; which consisteth

eth of matter of Counsel, Advice, Stra-gems, and Martial Courts. Touching ich, in regard of their variety, and the werable dependants, I shall onely speak such as may afford the most general use, be most properly drawn into imita-n.

And in the first place I shall begin with me considerations needful to be taken fore the War be entered upon.

The Attempters of a War are therefore deliberate concerning both their own ces, and those they are to deal with. ey are diligently to inform themselves their Enemies Treasures as well as their wn; how raised, how maintained: and efly they are to consult by what means may be deprived of them, or of any part them; and thereby weakned in those ain sinews of Military strength.

The Enemies Militia as well by Sea as Land, is likewise to be enquired into. herein notice is to be gotten not ely of the number and value of his Ship-g and Boats, but of his Mariners and Commanders: and concerning his nd-force, what numbers of Horse and he is able to bring into the Field; how

how armed, how disciplined, of what confidence and spirit; and to what Climate and Country enured, and how bred and brought up.

Diligent and heedful enquiries are also to be made of what condition the Enemies Country is that is to be invaded: As, whether it be strong by Nature, by reason of Woods, Mountains, Seas, Lakes, Rivers, Marishes; or artificially strong, by Forts, Castles, and strong Towns: of all which, the number, the site, the quantity of Munition, the number of the Defendants in every strength, and whether they be strong by Nature or by Art, or by both or by neither, are as much as may be to be known beforehand; that so the preparations may be made accordingly.

All these particular discoveries being thorowly made upon those who are to be invaded, no less diligence is to be used by the Invader concerning his own preparations; and especially in Monies, Munition, and Victual.

And he may be said to be well provided in the point of Victuals, when neither his Army in the Field need complain of scarcity, nor his Towns and Forts remain dis-

furnished.

nished. And of Munition, when he hath onely a sufficiencie of great Guns for Field, Sea, Batteries and Forts; but Armour of all usual kindes, with the ensils due to a War, as Powder, Fire-ks, Match, Engines, Balls, Gabions, riages, Beasts for draught and labour, dges, Ladders, Planks, Spades, Shovels, s, Sacks, Baskets, Timber, Cables, es, Handmills, &c.

But besides all these, fit and provident federations are to be made with all foreign Princes and States as may r assist or hinder the War; either for efit, or Traffique, or for States-sake, for necessity of dependance, or for al-nce and consanguinitie. For these con-erations being duly observed and pro-ded for, the difficulties will prove less, ther for the maintenance of the War, or making of a Peace, as occasion shall at time be presented.

The Justice likewise of the War ought be divulged; and that for a satisfaction well to the natural Subjects, as the ighbour-nations. And this may be done a publication of the original causes: War being to be allowed for Just, which

which is (indeed, without false pretences) made for the true Religion, for just Liberties, for repelling of publick wrongs by a foreign State after refusals of redress, in defence of Friends violently and injuriously oppressed: And that War Unjust which is taken up for private Ends, Ambition, Revenge and Empire.

As touching such Invasions as are to be attempted by Sea and Shipping; whosoever intends them, is to assure himself beforehand of some commodious and sure Landing-places, that neither the Ships suffer wrack or eminent danger in approaching the coast, nor the Souldiers incur manifest hazard at their dis-imbarqueing. And of the same importance is the fore-casting of a safe place of retreat; if peradventure the Army should be repelled by extremity of weather, contagion of sickness, or the strength of the Enemie.

And thus far concerning such considerations and Counsels as are aforehand to be taken in point of an Invasive War.

As for such as are to be practised in War Defensive, (though the surest Defence is Offence) yet such as are forced

unto

to it, are by all means to assure themselves of their neighbours by Leagues, by provision of Treasure to defray all charges, or by an Army so governed by discretion, that no fight be admitted in heat and rashness; and yet so avoided, that the Army may not seem to forbear the battel for fear (which may utterly discourage the common Souldier, or encourage the Enemy) but rather as done out of policie. And withal, that the Country be on all sides wasted where the Enemy is to pass; so that nothing may be found for him to make use of. And in the interim, the defensive Army to be commodiously entrenched, having withal a guard upon the Enemies Army on all sides; that no relief, or as little as may be, may be brought to it.

This defensive War may also be maintained by the erecting of Forts, and the fortifying of Towns: for hereby the Defendants may not onely secure their lives from all sudden irruptions, and keep short the Enemy from relief, but defer battels at leasure, and thereby abate the Enemies heat and pride.

As for the parts where these Fortifica-

tions are to be raised, they are those which may give the most impediment to the Enemies attempts, and most security to the Defendants; as upon the Sea-coasts, the Ports and Landing places: and in the Mid-land parts, upon Narrows, and streight passages, and the Capital Cities. And these Forts are not to be so great, but that they may be manned and furnished, as well with Munition as Men, without the weakning of the main Army in the field; nor to be so small, but to be sufficiently capacious to receive the Peasants, and the best of their substance, in case of necessity.

CHAP. II.

Of a Defensive War, how best made and maintained. That when a Victory may be gained without blows, a Battel is not to be admitted. How Troops suspected either for courage or Loyalty, are to be ordered in Battel. What part of the Enemies Army is first to be charged. Requisite considerations in and after battel.

IN the foregoing Chapter (occasionally only) we made some mention touching

the avoiding of Battels in case of a defensive War. But in this, we shall enlarge our advertisements concerning that particular.

It hath been always a sure maxime of War, that whensoever by foresight well grounded, Victory cometh towards one without blows, or wounds; as either by picking up the passages, and so cutting off supplies, or by any the like means; that in such cases an Enemie is not to be assisted, nor admitted to the terms of a battel: for it sutes better with the worth of the spirit, and the essence of our nature, to direct the course of an action, that an Enemy may be conquered rather by Wit than War.

And hereof we have an example in Cæsars Commentaries: where *Cæsar* having shut up *Afranius* and *Petreius* in a place of advantage, although he might have cut them to pieces by an assault, yet finding the Victory sure without a fight, without blood, and without hazard; he answered his Captains who urged him to storm them, *Cur secundo proelio aliquos ex suis amitteret? Cur vulnerari pateretur, optime de se meritos mili-*

milites? Cur denique fortunam periclitaretur?

And indeed, before the falling upon a battel at any time, these following particulars are constantly to be received:

That a view be taken of the strength of the Army, and impartially compared with that of the Enemie.

That the place of Battel be near some safe Retreat, either of a Camp well entrenched, and sufficiently left with Guards; or some Town of defence near to friend.

That all courses be taken to give courage and confidence to the Souldiers; either by some fit applied words of exhortation, or by some incouraging stratagems, or by shews of contempt of the Enemies strength, or augmentation of his own, or by making shew of some secret intelligence from the Enemies Camp, or reporting some rumours of their fears and diffidence.

That in the ordering of the Army to the Battel, the Enemies order be heedfully observed; as also the site and form of the place and ground where the Battel is to be fought: to which an answerable ac-

com-

commodation is in every reſpect to be obſerved, as well in relation to the form as number of Diviſions: as alſo for the ordering of the Artillery to the beſt uſe, and moſt annoyance of the Enemie.

And if there be any new Troops that may be ſuſpected in their worth, and eſpecially loyalty; That they be placed rather in the Battel, or Middle-Guard it ſelf, then any of the Wings: for being thus ordered they ſhall neither be ſo put to it in point of courage, if they be wanting that way; nor can they find means or ſcope of fling out, or to take advantage to a miſ-as if they were ordered in the Wings: the Wings in a ſet Battel, are the ſtrength of it, and the principal inſtruments; and it hath ever been found, that long as they ſtand firm, the day ſtands for by them the Enemy is kept from ſurrounding the main body of the Army. and the ſame Army in the mean time hath advantage of charging the Enemie in Flank upon all occaſions and opportunities.

Conſideration is alſo to be had, whether it be for the advantage to charge, or attend the charge. If to charge (which

is most approvable in an open Country) that then it be performed with the whole Front at once, rather then by light skirmishes in the Wings and Corners; lest such of these as may chance to be rebutted upon the Main-Vant-guard, strike a terrour, and perhaps disorder through the whole body of the Army: of which there have been infinite examples.

An especial observation is likewise to be made touching the part of the Enemies Army which is first to be charged. With the Ancients and many of the Moderns it was a Maxime, that it was to be the weakest part. And this was practised by *Cæsar* in his fitst Battel with *Ariovistus*, and by *Scipio* in *Spain*. And the most hereunto seem to be, in regard that most judgments are favourable to that which happens well at the first: the sequel of every action depending for the most part upon the beginning; neither can there be a good end without a good beginning. For though a beginning be often disastrous and unlucky, and the end fortunate and happy, yet before it came to that end, there was a fortunate beginning. And therefore that an Army might foresee a happy end in the

good

od beginning, it was the ground of this
xime, that the beginning of the assault
ould be with the best of the Army upon
e weakest part of the Enemy.

And yet contrary to this Axiome, that
olute and glorious Souldier, the brave
ng of *Sweden*, in the battel of *Lutzen*,
e order to have the strongest part of the
mies Battel to be first charged. For
ing the Cuirassiers of the Enemies Horse
one Division by themselves in the
t, and the Crabats the light-armed in
ther; *Charge home* (saith he to one of
prime Commanders) *these black coats*
in their compleat Arms, for these
they will put us to it; as for the Cra-
ts, I care not for them. By which it is
nifest, that the ground of this his direc-
n was, that the flower of the Enemies
my being well put to it at the first (and
s was likeliest to be done best, when his
n were at the freshest) if they should
e be routed, it would not onely occa-
a dismay to the part where they were,
leave an easier task for the routing of
the rest behind. Neither for my part
I find less reason for this, then the An-
ents and the others did for their practice.

Lastly, Care is to be taken before the charge be given, that a Watch-word, or rather some particular signe and visible token, or both the one and other, be imparted to the whole Army, that in all medlies they may be known one to another, and distinguished from the Enemy: and then to give the signal of Battel. And the rather, if either any fear or disorder be perceived amongst the Enemy, or a forward desire and heat to the fight with his own men. And these are the observations and directions requirable before a battel be accepted and joined.

The requirables in, and after it, are these following: That during the heat of the fight a vigilant eye be carried upon all mutations, that so all disorders may in due time be either prevented or repaired. That if the General (after the fight) finds his side to have the worst of it, he act according to that which shall be observed in the Enemies order, and the courage of his own men; and so apply himself either to rejoin or retire, executing accordingly with vertue, industry, and providence. That if after the fight he find himself to have the best of it, he thorowly to his utter-

most prosecute his Victory; and take from the Enemy all means of reuniting his forces: That he equally distribute the spoil, with a due respect to the quality of persons, and vertue of the deservers; not (as now adays in the disordered discipline of the age) those come to most gettings which come to least blows: That over and above the common distributions) all eminencie of worth, wheresoever it be found, be rewarded. And herein were to be wished a renovation of that Roman way, to give some portable marks of honour, together with a sufficiencie of competent subsistence: That (on the other side) all Cowardice be punished, even to the least touch of it, wheresoever it shall be found: That mercy be used to Captives, and good Quarter given them; That the dead on both sides be buried: That the acceptable sacrifice of thanksgiving be offered to the great giver of Victories, as the gift earnestly and humbly craved of him before, at, and after the attempt.

CHAP.

CHAP. III.

Of the pursuit of a Victory. Reasons for pursuing a beaten Army, rather than taking in Towns. Of mercy to Captives, termed, Giving of Quarter. Of Quarter to be given to Nemers. Orders to be observed in the taking of Prisoners.

HAving in the last foregoing Chapter made onely a mention of the pursuing of Victories, and the shewing of mercy to Captives (in the very latter end of the Chapter) we shall in this enlarge ourselves touching both these particulars, as being points of main consequence and concernment.

Touching the pursuing of a Victory after the gaining of a Battel, it hath been much controverted amongst the greatest Commanders, whether after the routing of an Enemies Army, the broken Army should be thoroughly pursued; or the Conquerours should apply themselves to the taking in of some Frontier Towns belonging to the beaten side.

Those that hold for the taking in of Towns

towns, have delivered these reasons; That the great astonishment that generally befalleth to such as are beaten out of the Field, doth commonly so extend it self to all the Members of that party, that their fear may procure a rendry of a strong place at the very first summons, or within two or three days; which at another time would not be carried in twelve moneths, or perhaps not at all. Secondly, That the taking in of one strong Town is many times of as much importance as the routing of a fresh Army of the Enemies; and especially when hereby the Enemy shall be deprived of all Retreats in those parts. Thirdly, That a routed Army thinks of nothing but flight; and therefore is not to be overtaken and staid without great difficulties, and much harming and toyl of the pursuers. Fourthly, That a beaten Army thus flying, falls to pieces of it self, and deserves not any great regard; much less are any important opportunities to be neglected upon this consideration. On the other side, such as argue for the thorow pursuit of a beaten and flying Army, alledge that hereupon the one of these two effects must necessarily follow;

low;

low, either that the Enemies Army shall hereby be absolutely defeated, or that they shall be constrained to capitulate for their Retreat: whereas if they shall be quietly suffered to pass without a perfect Rout, their able Commanders may find means in a short time to become once more able to march.

For mine own part, when I consider of the reasons on each side, I am made the most inclinable to those that hold for the thorow pursuit of the beaten Army. For though a Victory by the gaining of a battel, may perhaps strike some terrour amongst Besognes and fresh-water Souldiers, and with such procure an easie rendry of such Towns as are manned with such men; yet with old Souldiers (though beaten) having true Commanders, who always sell themselves dear, it procureth a quite contrary effect, and obstinateth them to all kinds of possible defence. Besides, though the taking of some one strong Town may (as it may be sited) prove as gainful as the routing of an Army of the Enemies, yet whensoever the taking of any such place shall cost much time, it shall not onely weaken the Victo-

rious

ous Army that beſiegeth it, and retard it from making uſe of the Victory lately got-ten, but give the beaten Enemy liberty and oportunity to reinforce their Troops, ſafe-guard their Ordnance, and either by way of diverſion, as falling upon ſome o-ther part, or by making head againſt the beſieging Enemy himſelf, and cutting him ſhort from Victual, quite alter the Face and fortune of the War. Again, though a routed Army may perhaps for the time think of nothing but a flight, and this may faſten it ſo, as may coſt ſome time and la-bour in the purſuit; yet being hotly pur-ſued by the Horſe onely of the Victorious ſide, it muſt needs ſuffer extreamly, and eſpecially the Infantry part, and ſen to one in the loſs of their Artillery and Bag-gage. And all this done without any great or remarkable diſturbance, or haraſſing to the purſuing Army, whoſe very Horſe alone is to put hard to it upon the chaſe; the foot having liberty to march fair and eaſily after, and may come time enough nevertheleſs to fall up with the flying E-nemy, being thus retarded by the Horſe.

And I am confirmed in this opinion by ſundry preſidents, (amongſt which, two

are

are very punctual) set down by that able French Commander *La Noue* in the domestick Wars of *France* during his time; being the one of them, that Siege of *Poictiers*, which became the ruine of the Army of those of the Religion, after their Victory at *Rochebelle*: the other, that of St. *Jean d'Angelie*, which proved the like to the French Papistical Army, after their Victory at the battel of *Montcontour*. Whereas on the contrary, the King of *Sweden* after all his gained battels, did hotly and thoroughly pursue the utter overthrow of his enemies scattered Troops; and in regard of that neglected, or at the least suspended the taking in of any of the neighbour Towns, whereabout the battels were fought. And by this course prevailed to admiration.

And thus much touching this great controverted point, Whether after a Victory in the field the routed Army be to be pursued to an utter ruine, or the Victory to be made use of by the besieging of some Towns belonging to that beaten side.

As for the mercy that upon the attainment of a Victory is to be shewed to the Captives, generally received under the name

of giving good Quarter, and by French called *Bonne Guerre*; it prohi-
not onely the killing and murthering
y, much leſs of women and children,
he ſlaying of any in cold blood; or the
receiving ſuch to mercie (that is, the
giving of them their lives) who ſhall
up themſelves and their Arms priſo-
after the fight is over; but alſo all
and barbarous raviſhments of women,
the like cruelties. And withal (as it
w in practice in our neighbour-wars)
riſoners, being enrolled Souldiers, are
freed at the ranſome of a moneths
according to their ſeveral condi-

But this general rule is not without
exceptions: for if the Governour of
ſieged Town or Fort ſhall defend the
he commands ſo obſtinately, that it
formed and entered by force, and ſo by
aſſault taken, and hereupon he yields
ſelf after the heat and violence of the
be over, to a private Souldier; it ſhall
erthelefs be lawful (without any breach
Quarter) for the General of the aſſault-
Armie to make him die; becauſe this
obſtinate and wilful defence was a treſ-

paſs

pass against the person of the General and the whole Armie, and cannot be privileged by any condition with a private person. Also if a private Souldier shall give Quarter to any Fugitive or Spie, or any one that hath at any time practised foul War, or broken Quarter; or to any other which hath formerly deserved death for some capital offence; it is at the Generals pleasure whether this shall be made good unto him or not. Likewise, if during the fight of a Battel, many prisoners have Quarter given them upon the routing of some parts of that Army, and afterwards some parts and divisions of it, as the Battel or the Rear, holding firm, give on so stoutly, as that the fortune of the day inclines to a change; and those that had the best of it at the first, begin to be shaken and in danger: it shall in this case be held no cruelty nor breach of Quarter, though those prisoners that were taken at the first, and had Quarter promised, be presently slain in the field by such as took them; because otherwise they may endanger those that took them, or at the least ask more hands for their safe keeping then the exigent will allow to be idle.

And

nd thus befel it in one of our braveſt bat-
s with the French in *France*; where
e French priſoners which were taken
the beginning of the battel upon Quar-
r, which were very many, and many of
re, upon a ſecond charge given by the
ke *d'Alenzon*, were all commanded to
ſlain; which coſt the French doubly
r, the loſs of all their priſoners, and the
ter routing of their puiſſant Army.

It is thought alſo by ſome, that the ſub-
ts of a State Neutral that ſhall enter-
in Traffique with an Enemy to another
te, may by that State be made prize,
d no Quarter to be given them, at leaſt
aſt in point of goods. For (ſay they)
ough they do not this out of any affecti-
n of either love or hatred, but only to
ke their benefit, and not to any propo-
d relief; yet doth this tranſport of Mer-
handiſe prove a plain and direct aid: And
that regard, howſoever brought to the
nemie, deſerveth to be puniſhed with
onfiſcation at the leaſt; becauſe that our
them Cuſtoms and Impoſts are raiſed,
hereby their War is maintained. But of
e right of this I make a Querie; think-
g it rather to be underſtood onely of

Munition, and Materials of that nature: for otherwise it must necessarily overthrow all manner of Trade, and set the whole World together by the ears.

Touching such orders as are to be observed in the taking of Prisoners by those that take them, I finde them to have been these, by those of our own Nation. That if any Common Souldier did take a prisoner, and another coming up at the same time should challenge the half of his ransome, or else threaten to kill the Prisoner, the menacer was to have no part at all of it; no, though the taker of him had made him any such promise. And if the Menacer did kill the Prisoner, he should be under Arrest with the Marshal untill he compound with the partie for the loss of his Prisoner: and besides, he was to forfeit his Horse and Arms to the Constable.

That if any Souldier in any fight did beat down any one of the Enemie, and so leaving him, pursue on in the chase of fight, and another come up after him and take the same man prisoner; this Prisoner thus beaten down, and thus taken, when he was to be ransomed, was to pay

the

one half of his ranſome to him that ſtruck him down, and the other half to that took him priſoner.

That whoſoever he were that took any priſoner, he was, as ſoon as poſſibly he could, to preſent him to his Captain or Commander, upon the penalty of loſing part of the Priſoners ranſom to the ſaid Captain or Commander; and the Captain or Commander to preſent this Priſoner to the General, Conſtable, or Marſhal of the Army, before any other ſpeak with him, ſo his examination might be duly taken. And this to be done under the penalty of loſing his Thirds of the Priſoners ranſome (which otherwiſe was due unto him by his place) unto him that did firſt diſcover the default unto the Conſtable or Marſhal. And that every one in whoſe cuſtodie this Priſoner ſhould chance to be, was to be careful to conceal from him all the ſecrets and Avenues upon the Camp. To which end, he was not to be ſuffered to walk at large, nor to range about without a good Guard upon him; and that upon pain of loſing his Priſoners ranſom; whereof the one third part was to be allowed to his Captain, the other third

to the Constable, and the last to the Informer: And the person also of the Delinquent to be under arrest at the Generals pleasure. Neither was any man to ransom his Prisoner without Licence of the General, or the Constable, or Marshal; nor any private person to give any safe-conduct to any Prisoner, upon pain of forfeiture of all his Goods, and his body to be under arrest during the Kings pleasure. And whosoever violated the Kings or Generals safe-conduct, was to be hanged, drawn, and quartered.

And being thus fallen upon the punishments of Delinquents in a Martial way, we shall in the next Chapter say somewhat of Martial Courts.

CHAP. IV.

Of the Martial Courts in an Army Royal: the manner of Trials in them. Of the punishments inflicted upon Delinquents in these Courts. Of punishments in crimes not capital.

IN a well disciplined Army three several kindes of Martial Courts are to be instituted: for it is a noveltie to have Martial Law denied in the Government of an Army in the Field; and an absurd thing.

The first Martial Court consisteth of all the Commanders in chief, with the Colonels, and Judge-Marshal General. And this Court, after due notice taken of the offence, pronounceth sentence accordingly. And from this Court lieth no Appeal; but to it may Appeals be made from any of the other two.

In the second rank are those Courts which are Weekly held in every Regiment, and oftner if cause require. And the Colonels of the Regiments, with the Judge-Marshals, here sit in their several

Courts, and pronounce sentence upon the Delinquents of their several Regiments.

Of the third rank is that Court where the Judge-Marshal of the Army, and the Judge-Marshals of the Regiments sit, and onely they. And this Court takes notice of all Causes both criminal and civil; and is instituted for the ease of the Commanders. And into this Court the offenders and their offences are presented by the Provost-Marshals of the Regiments: whose office also it is to produce the accusers, and to attend the trials and censures; the which they are also to see executed.

Touching the manner and form of the Trials in all these Courts, they are not much dissonant from those in Courts Criminal ordinarily practised: for the accusers are heard upon their oaths, as also the witnesses. And the accused have full libertie to speak for themselves, and are to be heard with patience and equanimitie. Onely the Decisions, in stead of common Jurors, are passed by most voices, being the Votes of such Commanders as sit Judges in the several Courts; and the Censure

pronounced for the most part by the
dge-Marshal; or in his absence, by
Prefident of the Court for the time
ing, who is commonly the most eminent
ficer amongst them. And these Forms
d courses of Trials seem to me without
ception; and are so proper and essen-
al to the well regulating and Govern-
ent of an Army, in regard that delays
execution upon Delinquents in many
es cannot be endured without thousands
varieties of danger; that for my part I
not understand how an Army can sub-
without them.

As for the punishments inflicted upon
Delinquents by these Courts; in capital
nses, they are, Shooting to death, which
held the fairest; Hanging, and some-
mes Empaling. That Delinquent is to
shot to death, who killeth any man in
Duel within Cannon-shot of the Camp;
that maketh any attempt upon the Ene-
my without direction or leave from his
superiour Commander.

He is to be hanged that Robbeth, Mur-
thers, desperately and obstinately Bla-
phemes; that is a Mutineer or an incit-
er of Mutinies; that rescueth offenders

from the execution of a Censure: That striketh his Commander: That wilfully discharged his Piece to give a false alarm in the night, or in any ambush by day: That licenseth Souldiers for money to leave the Army, without leave of the General: That takes pay of two Captains: That fights or quarrels in the instant of service, or upon the expectation; in which case also it is permitted for any Souldier to kill such a Souldier: That absents himself from his Duties: That abandons his Colours in danger to be lost: That dispersedth false News or Reports, of purpose to discourage his Companions: That straggleth from his Colours in a march, or keeps not his appointed place: That gives not the Alarm to the Camp upon just cause when he stands Centinel: That answers not all Alarms: That goes out of the Camp or Trenches by any extraordinary way save the common ones: That sells his Horse or Arms when Service is expected: That succours not his General or Captain being in danger: That quits a place committed to his charge being not enforced by the Enemy.

That

That offender is to be Empaled, that willingly and of purpose changeth the Watch-word, or makes it known to the Enemy: That committeth treason against the person of the General, or Army in general: That poisons the Artillery, or by any ways maliciously makes it unserviceable, or endeavours to make it so: And lastly, That entertains any secret intelligence with the Enemy. And these are the capital punishments for capital offences.

As for the inferiour and less capital: He is to be imprisoned that fights, swaggers, swears, couzens, drinks drunk: That is a common Gamester, absents himself from his Quarter by night: That pays not the Merchants, Artificers, or Victuallers their dues: That either by negligence or folly discovers any purpose or intention of the Army: That strikes or beats any Souldier without cause: That neglects Divine Service.

He is to undergo the Cudgel, that is contumax or insolent towards his Commanders: That keeps not his Arms clean and in point: That either sells or pawns his Arms; or buys or takes any Arms to pawn.

He

He is to be disarmed or banished the Army, or Strappadoed, or Whipped, (but this last is seldom to be given to a Souldier) that shall obstinately persevere in any crime whatsoever. And these, and such as these, are the crimes punishable in Martial Courts: And indeed any other crime whatsoever, which shall tend to the disturbance of the Army, or the debauching of the Souldier.

CHAP. V.

Of the laying and preventing of Ambushments. How a discovery upon an Enemie may best be made. Of the fittest places for Ambushments. Of the service of Horse-men and Foot-men, which is to be preferred.

WE shall in this Chapter give some advertisements (and that very briefly) about two particulars not yet mentioned; Touching the laying out of Ambushments, with the prevention of falling into them; and the comparing of Horse and Foot in the advantages and dis-

disadvantages they have one of another; that so the discreet Commander may make use of them accordingly.

As touching the laying out of Ambushments, the especial point to be aimed at and heeded, is, That it be done in such a part as may least be suspected; and in such a manner, that the Enemie may fall within the danger of them. To give colour whereunto, one common trick hath been, to pretend aforehand (in such a kinde, that the Enemy may so conceive it) some fear, and so a flight; or some want of necessaries, and the like; whereby the Enemy may be drawn to a more eager and bold pursuit, and so the more heedlesly and unrecoveredly fall within the danger of the Ambush. And many other the like practices of this nature may be thought upon to this purpose.

As for the courses of prevention from falling into these Ambushes, it is a good general rule to suspect all sudden removes and fallings off of an Enemie. In which case an exact and cautious discovery is to be made, even to the very place where there is any intention to lodge. And the manner observed in

these

these discoveries have usually been, to send out Parties in three Companies or Divisions: the first to consist of a small number, to beat the way at ease, and to range about from place to place, where any danger may be expected. The second Partie to be somewhat stronger, the better to second and bring off the first upon all occasions. And the third to be so strong as to make head against, and to engage a strong Partie of the Enemie, if he shall present it. And thus did *Cyrus* in his so famous descent dispose of his fore-runners and discoverers in the like case, (as *Xenophon* lays it down) and that with very good success.

And it is to be noted, that these discoveries are ever to be made with the light-armed Troops. For it being a point of no small concernment, to be thoroughly informed of the true distances of the places, the condition of the ways, the nature of the hills, and the course and passages of the Rivers where the Army is to pass; this cannot better be performed (nor so well) as by the light-armed. And being by them thoroughly

roughly done, afforded incomparable advantages; good discoveries being the very eyes of an Army, whereby the resolutions of providence are guided, and the path of safety delineated, that so there may be no stumbling upon casualties. And all this is attained by a perfect intelligence of the true face of the Country, and in knowing the motions of the Enemy. And the face of the Country is best known by the use and employment of the native Guides of the Countrie; provided that they be always associated with some faithful Scouts of ones own, that so there need not be an absolute reliance upon a strangers information. And as for the motions of the Enemie, they may be surest had by the light-armed Horse; who nevertheless are not to be over-forward in informing upon every new trifling motion, but to have their intelligence confirmed unto them by divers and various ways and means; lest some errour and mistake befal them thorough passion or affection: as to those in *France*, who thorough the passion of fear took a field of great Thistles, for a mightie Body of Pikes.

As

As touching the fittest persons to be laid out in Ambushes; It is to be considered, that all Ambushments are made use of either to endanger and ensnare the Enemy in a fight in the Field, or to entrap and hinder him in his march. And examples of each sort are found frequently practised by that subtle *Hannibal* in his Italian Wars: In the first whereof, he constantly employed as well the heavy armed Souldiers as the light. In the second, the light-armed alone; whose agilitie and expedition gave them opportunity and advantage with their missive weapons to assault and annoy the Enemie, though the ground were never so strait or uneven. And these also might be more easily lodged without discoverie.

As for the parts and places most proper and fit for the receipt and lodging of these Ambushes; they are such as are most removed from the view, as Woods, Mountains, Forests, Rocks, Banks of Rivers, Hollow and deep ways: In short, any place or piece of Ground, wherein some numbers and Troops of Souldiers may best lie obscured and hid. And

thus

thus much touching the ordering and diſpoſal of Ambuſhes, with the uſe of them.

We are now to fall upon a compariſon between the Cavalrie and Infantrie in point of War; with reſpect to the advantages or diſadvantages they have one above another, according to the ſeveral ſervices and occaſions they may be employed in. Touching which, ſuch as prefer the Foot-men or Infantrie before the Cavalrie or Horſe, give theſe Reaſons: That the Foot may be employed in all places, and upon all occaſions; whereas the Horſe in craggie and rough ways are of little or no uſe at all: That the Foot are more ready and leſs chargeable; and being well led and armed, indure the ſhock better then the Horſe can: That in the guarding of Towns, and all places of ſtrength, Foot-men have the prioritie of Horſemen, in reſpect of the point of Proviſions; it being more difficult and troubleſome for a Commander to feed his Horſes, then to feed and diſcipline his men: That at aſſaults of Towns, Horſemen are of ſmall uſe, if they leave not

their

their Horſes; and then they are no longer Horſe-men: That at ſet Fields and Battels, Foot-men having means to entrench themſelves, and having good Pikes and ſtore, have always been found more then equal to Horſe-men. In Levies, Foot-men are more ſpeedily raiſed, and led and lodged with more facilitie: They are paid with leſs charge then the Horſe: They fight more ſafely, rally themſelves more certainly, and eaſily: And laſtly, Horſe are hard to be found in any great numbers; for it may be believed that there are twentie men to one Horſe in the World. And theſe are the proper priorities of Foot-men over Horſe-men, which have been obſerved, as well by the Antients as the Moderns. To which alſo (in mine opinion) may be added, That the Foot are by far more fit for all ſorts of Ambuſhments then the Horſe can be, in regard they may be lodged more ſecretly; and eſpecially in reſpect that Horſe are very ſubject to diſcover themſelves by their noiſe and neighing. And beſides, the beſt man of courage that breathes, is in a fight ſubjected to the diſorder and

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unmanageableness of his Horse that he rides upon.

On the other side, those that prefer Horse-men before Foot-men, give these instances: That a Horse-man hath stouter and better legs then his own: That he chargeth more furiously: That he hath more force and breath then a Foot-man: That Horse have the advantage in long marches and hasty pursuits: That they have more means to surprize an Enemie: That they have more oportunities to approach, to seize upon, to cut off, and to hold all passages; to invest Towns on a suddain, to answer Alarms and to give them; to command the Field, to make a spoil, to cut off all supplies, either of Victuals or Munition, then any Foot can possibly have.

And thus we have done with these two particulars, and finish the Chapter.

CHAP. VI.

Of Stratagems of War. How to breed a cauſleſs fear, or the contrary. To give aſſurance to the beſieged being in fear. To draw an Enemy to an over-daring, or into an over-ſecurity. To diſcover whether a Town lately received to Quarter be to be truſted. How to appeaſe an Army mutinying for pay upon a fight. To avoid Battel when an Enemie is far too ſtrong: or to entice him to Battel when too weak. Of deſperate attempts in a deſperate condition: they are to be charily and warily handled. To prevent partial reſpects in giving of Counſel.

IN the laſt Chapter having laid down ſome rules for the ordering and diſpoſing of Ambuſhments, we ſhall in this take occaſion from them to intimate ſomewhat concerning Stratagems of War. And becauſe theſe are ſo diverſified and varied upon ſeveral occaſions, that for the moſt part they are in that reſpect be-

beyond any ſet rules; we ſhall onely particularize in ſuch as being of the moſt general extention, may happily be made uſe of by way of Renovation and Imitation.

And we will begin with a ſtratagem, whereby a beſieged Enemie may be couzened and terrified by a ſuppoſed Mine when there is none. And this was practiſed by *Philip* King of *Macedon*, (not the father of the great *Alexander*, but he who was afterwards vanquiſhed and ſubdued by the Romanes) who beſieging the Town of *Priniſſus*, attempted it by a Mine; but finding the earth and part ſtonie, that it deſpaired him of ſucceſs that way, he cauſed his Pioneers to continue the ſemblance of working, and to make an extraordinary noiſe under ground: and the more to add a belief of their working, he cauſed a great quantitie of earth to be brought ſecretly in the nights from elſewhere, and to be laid in heaps at the entrance and mouth of the ſuppoſed Mine, that the Enemie might well diſcern it, and ſuppoſe that it was taken and digged out

of the Mine. And after ſome time ſpent in this manner, he ſummoned thoſe of the Town to a rendition; ſending them word that by his underminings, their Towns Wall, to the quantity of two acres of ground, ſtood onely upon wooden props; to which whenſoever he did give fire, that part of their Wall would lie flat on the ground: the which if they did attend, and cauſe him to enter by a breach, they were not to expect any Quarter or Mercie; and therefore wiſhed them to conſider of their condition, and to do as they found cauſe. Now the *Prineſſians* little thinking that theſe heaps of earth which they ſaw, had been brought from other places, but that it had been taken out of the Mine; ſo loſt their courages, as that they ſuffered themſelves to be outbraved, and thereupon gave up their Town upon a meer panick fear.

And as this was a Stratagem to occaſion and work upon a falſe fear; ſo theſe three following were to recover from the like.

The Souldiers of *Alexanders* Army be-

being on the ſudden in a great fear, of they knew not what, *Alexander* at that very inſtant cauſed them all to be diſarmed; whereby they became aſſured that this would not have been commanded, if there had been any preſent danger.

Clearchus to pacifie a fooliſh conſternation and uproar of this nature amongſt his men, proclaimed a reward to him that could tell who had ſent the Aſs into the Camp. And thus by doing ſomewhat quite contrary to that which the peril would have required had it been true, he gave a full aſſurance againſt that which was falſe, and which his men had onely faſhioned in their amazed imaginations and conceits.

The third example to this purpoſe (which withal alſo expreſſed a magnanimitie, which both ſuſtained Reputation, and augmented it) was that act of the *Romanes*, which was done when *Hannibal* made his bold approach upon the City of *Rome*, whileſt the main of the *Romane* forces were at the Siege of *Capua*. For the Commanders at *Rome*

finding that the City by reaſon hereof was ſubject to Fears and Tumults, at the very ſame inſtant cauſed a ſupply that had formerly been appointed for *Spain*, to march out of the City at one Gate in purſuit of their firſt Reſolution, whileſt the *Carthaginian* Armie lay before the other; whereby they not onely checked the bold confidence of the Enemie, but took off that fear which clouded their own Valour.

To which purpoſe alſo that very piece of ground on which the *Carthaginian* Armie lay encamped, was at the ſame time ſold in *Rome*; and bought (ſaith the Story) nothing at all under the Value, but at the ſame rate as if it had been in the former times of peace. The which act and ſale, ſo madded even *Hannibal* himſelf, that to make a ſhew of being even with them, he made a Port-ſale of all the Silver-Smiths Shops which were near about the Market or Common place in *Rome*: As if he would ſeem to think that his own Title and Intereſt to thoſe Shops within the Town, was no jot worſe then any

any *Romane* Citizens to that piece of ground where his Tent ſtood.

But this Counter-piece of *Hannibals* was not of ſo good ſtuff as that of the *Romanes*: for their act was indeed a thorough manifeſtation of an aſſurance grounded hopefully, and was onely acted to ſtir up the courages of their men; whereas *Hannibals* was only a paſſionate ſhew, and an angry Brave of a continuance in a hope which he well knew was already paſt: His Victuals being at the ſame time ſo near at an end, that of all thoſe Hopes and Ends which he had propounded to himſelf by this his approach ſo near unto *Rome*, the fame onely of his much daring is left to poſterity.

It is true that *Hannibal* partly was quit with theſe *Romanes* by a Stratagem of another nature, that he put in practice at *Tarentum*; when having ſurpriſed the Town, and entering it at two ſeveral Gates, ſo that the *Romane* Gariſon with the Governo[illegible] were forced to retire themſelves into the Citadel, the which it behooved *Hanni-*

bal speedily to take in, in regard of the Vicinitie of the *Romane* Armie: he addressed himself against it in such a manner of Brave, as was likely to provoke the Garison to a Sallie; hoping hereby to give them such a blow as might disable them to defend the piece any longer.

And according to his expectation, the *Romanes* not enduring in such a slighting fashion to be approached upon, sallied out in a heat of furie with most of their bravest men, and charged them home. But *Hannibal* having ordered beforehand that his men should thereupon fall back as if they were terrified, until he had drawn out as many of the besieged *Romanes* as he could, and as far from their strength as he could; he then gave the signal to his *Carthaginians*, who lay prepared and ambushed for the purpose, and suddenly and fiercely setting upon the sallied *Romanes*, [illegible]onely forced such as were nearest home to retire themselves into their Hold, but laid on the ground all the forwardest and best of their men;

so

ſo that they durſt not iſſue out a ſecond time, but were conſtrained to ſuffer *Hannibal* to make his approaches at pleaſure, whereby he forced the place.

And as this was a Stratagem to draw Souldiers into an over-daring, ſo that which followeth is to win them into an over-ſecuritie; and was acted in this manner:

Antiochus the Great, in his Minoritie was wholly governed by one *Hermias*, an ambitious man, and a maligner of Vertue. At the ſame time one *Molo* the Kings Lieutenant in *Media* was broken out into a Rebellion, and ſought to make himſelf Lord of that Province. *Antiochus* being entered at the ſame time into a War with *Ptolemie Philopater* the Egyptian King, was counſelled by his Minion *Hermias* (who had put him upon the Egyptian War) to ſend againſt this Rebel, who was but a Captain, a Captain that was faithful; but himſelf to go in perſon againſt the King of *Egypt*, who was a King like himſelf. Hereupon one *Xenetas* an

Achæan

Achæus (by *Hermias* his choice and preferment) was ſent with an Army againſt the Rebel *Molo*, whileſt the King *Antiochus* himſelf marched againſt the Egyptian.

This *Xenetas* drawing near unto the River *Tigris* with his Armie, on the other ſide whereof the Rebel lay to hinder his paſſage, made a ſhew as if he would paſs the River by Boats in the very face of the Enemie; but leaving ſo many onely as he thought ſufficient to defend his Camp, he himſelf, with the flower and ſtrength of his Armie paſſed over *Tigris* in a place ten miles lower then where *Molo* lay entrenched; who hearing of it, ſent out his Horſe to give impediment: But finding that *Xenetas* could not be ſtopped, he practiſed this enſuing Stratagem to draw his Enemie into a ſnare of ſecuritie. He no ſooner found that *Xenetas* with his whole Armie marched towards him, but preſently he diſlodged, making a ſhew of taking a haſtie journey homewards: and to poſſeſs the Enemie that it was done in a fear, he withal left all

all his Baggage and Victual behinde in his Camp. *Xenetas* hearing of this his Retreat, eaſily ſuffered himſelf (more like a Courtier then a Souldier) to believe that the Enemie durſt not ſo much as look him in the face; and the rather, in that he was informed that he had left his forſaken Camp well ſtored with Victuals and Bootie: whereupon haſtily marching thitherward, and finding it to his expectation, he not only ſuffered his men to feaſt and drink to their full; but invited and commanded them to do ſo, making proclamation that they ſhould cheriſh up themſelves againſt the march that he intended to begin the next day, in purſuit of the flying Rebel. But *Molo*, who removed no farther the firſt day then he could eaſily make back again the ſame night, underſtanding what good rule the Kings men kept with his Victuals, made ſuch a ſpeedy and opportune return, that he came upon them early in the morning whileſt they were yet in their Wine and Chear, with his full force; and giving them a luſty Cami-

ſado,

ſado, ſo confounded them amidſt their pots, that their General *Xenetas*, with a very few beſides, dying fighting, the reſt were ſlaughtered ere they could finde their Arms, and the moſt of them before they were perfectly awake and recovered of their Wine; leaving by their over-ſecuritie an abſolute Victory to their ſubtle Enemie.

And becauſe it is a requirable providence, after a General hath obtained a Victory, and received his Enemie upon Quarter, be it either in a Town newly taken in, or in the Field, to be wary of an over-confidence in their Faith and Loyaltie (eſpecially when the Enemie is near) but rather by all ſearching ways to diſcover, if it were poſſible, their very hearts: That Stratagem which to this purpoſe was practiſed by the Spaniards at their taking of the City *Verona* from the Venetians, may ſerve for a preſident for the future in the like caſe; which was this:

The Venetian Armie lying near unto the Town, which was not long before

ore taken in by the Spaniard upon Composition; the Spanish Governour aiming to understand how the Burgers and Citizens in general stood affected to their old Patrons the Venetians, gave secret order to the Spanish Garison that was in Guard of the Town, that in the dead of the night when the Towns-men were asleep, they should run to and fro about the Citie, and crie out, St. *Mark*, St. *Mark*, as if the Town had been surprized by the Venetians. The which crie being readily answered by as many of the Citizens as secretly favoured the Venetians, and were ready to receive them; the Spaniards observing their Houses, marked their dores with some Chalk, or the like: And being thus discovered, the Governour the very next morning imprisoned the chiefest of them, and confiscated all their Goods; whereby he not onely secured the Town, but contented the Garison with the confiscations; the Souldiers being at the same time inclinable to a mutiny for want of pay.

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Nor is there any thing of a more dangerous conſequence, then for an Army (eſpecially upon the point of Action) to be found in this condition of a Mutinie for pay. And the ill effects thereof have many times ſorted to an abſolute ruine; and above all other parts, in the Wars of *Germany*, and chiefly of late years; where the common crie, even at the exigent of a Fight, hath been, *Ghelt*, *Ghelt*, Money, Money: And ſometimes occaſion taken thereupon by the Souldier to ſeize upon the perſons of their Commanders, and to deliver both them and themſelves to the Enemies mercie. For the cure, or at the leaſt Palliation of which deſperate diſeaſe, ſome brave Commanders have been forced (with good ſucceſs) to practice this Stratagemical courſe: To borrow of their chief Officers, upon fair and promiſing terms, ſuch ſums of money as could be gotten and ſpared on the ſudden: whereby was attained not onely ſome ſatisfaction for the Common Souldiers, by letting them feel ſome piece of a

Pay,

ſy, and making them to apprehend that their General had a care and love of them; by thus engaging of himſelf to give them content: but alſo a Tie upon all the Officers that made this Lone, cauſing them to be true and faithful unto the General who had borrowed theſe moneys of them; that ſo they might be in the better poſſibilitie to reimburſe their lent moneys, with the uſury of a thankful acknowledgment.

And an example of this we ſhall finde punctually practiſed by *Ceſar* (recorded by himſelf in his Commentarie of the Civil Wars between him and *Pompey*, *cap.* 14.) For being to paſs ſuddenly into *Spain*, and to pay a great Armie, which required much preſent money; he borrowed all the money he could of his Centurions and Tribunes, and gave it out preſently and publickly to his Souldiers: whereby (ſaith he of himſelf) *Ceſar* both engaged his Captains to a dependencie upon him, in reſpect of their Lone; and won the affection of his Souldiers.

ers by his Largeſs, and made them willing to fight.

Now though an Army be never ſo well affected to their General, and as willing thereupon to engage their lives in his Quarrel and under his conduction as can be wiſhed; yet when an over-powerful Enemie is to be encountered, and ready for a battel, it is the wiſdom of an able General by all means to ſeek to avoid it.

Towards which this Stratagem following much conduceth, and may be drawn into Preſident, as it is ſet down in *Polien.* (*lib.* 4. *in vit. Antig.*) and practiſed by *Antigonus*, when he was encamped in the face of *Eumenes* his Armie, but with an Armie by much inferiour in number. At what time Meſſengers (or rather Spies) being interchangeably ſent from one to another; *Antigonus* at the receipt of a Meſſenger from the Enemie, which he expected, had fore-appointed that one of his Souldiers ſhould come running, and as it were breathleſs, and all to be duſted and ſweaty, and tell him that

all

all his Confederates were arrived. Upon which Tale *Antigonus* expreſſing much joy, preſently diſmiſſed the Enemies Meſſenger without more ado. And the very next day he brings his Army out of his Trenches, doubling the length of his Front, to make his Armie carry the greater ſhew. The which the Enemie ſeeing, and having heard the report of their Meſſenger, and obſerving the breadth of *Antigonus* his battel, and imagining that the depth was anſwerable to it; he ſuddenly diſlodged, and was afraid to joyn battel with him; which was the onely thing that *Antigonus* deſired.

And as this is a Stratagem to ſhun and decline a Battel when the Enemie is found too ſtrong; ſo this other ſucceeding is very pertinent, on the other ſide, to draw and entice him to a fight when he is known too weak.

And this Stratagem alſo is mentioned by *Polienus* (*Lib.* 2. in *Cleandridas*, *Sect.* 4.) where *Cleandridas* making War upon the Thurians, and

having double the number of men in his Army to that of his Enemie; and conceiving that if he did but know ſo much, he ſhould never bring him to a battel: To deceive him, and embolden him by his ignorance, in the embattelling of his Armie or Phalanx, he ordered it into an extraordinary depth: whereupon the Enemie apprehending by the narrowneſs of the Front that *Cleandridas* was very weak in number, contemning his ſmall ſtrength, drew out his Forces in breadth, with an intent to environ him. The which *Cleandridas* perceiving, commanded the one half of his Files to march up and rank with their Leaders; and thereby ſo over-fronted the Enemie on a ſudden, unexpectedly aſſaulting him withal with miſſive weapons on all ſides, as he utterly routed him.

As touching the practice of deſperate attempts in Military Actions upon deſperate exigents: It may proye ſometimes a profitable Stratagem to attempt and put that in execution, which otherwiſe in it ſelf were contrary

trary to Reaſon it ſelf, and the very Art of War: which may be grounded upon this:

That in regard a wary and able Commander and Generall not onely paſſeth upon tried and ſure Grounds himſelf, but even from thence and the very ſame Rules expecteth the like from others; upon finding the contrary practiſed by his Enemie beyond his apprehenſion and expectance, he may thereby be happily ſo diſturbed in his ſet Reſolutions and Courſes, and be ſo new to ſeek, as may (before he can recal himſelf out of his amazes) give oportunity to the deſperate attempter, to free himſelf out of his deſperate condition.

And Examples proving thus much are to be found put upon even *Caſar* himſelf by the *Nervii*, (regiſtred by himſelf in his Commentaries, *cap.* 50.) as alſo in that battel of his with *Pharnaces*. And in our Modern Wars this practice hath proved ſucceſsful more then once, in thoſe violent Civil Broyls in *France*.

True it is, that these ways and stratagems are to be charily and very sparingly handled; and onely upon most urging, if not desperate occasions: For, *Temeritas non semper Fœlix.*

Since therefore there is so much of Advice and Counsel requirable in all Actions of War, we will conclude this Treatise with a preventative Policie or Stratagem for the taking away of false or flattering respects in the point of delivering opinions. For it being over-commonly found, that through the obsequious dependance upon some Favourite or great Man, a general consent and compliance is produced, to say as he saith, or vote as he votes (a fatal disease in all great Assemblies) though perhaps it be either the worst that can be, or at the least, none of the best; and by this means the truest judgements remain concealed.

To remedie this dangerous and deadly mischief, the wise *Cosmo di Medici* (and herein also imitated by *Phi-*

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the ſecond of *Spain*) uſed to propound moſt difficult and important Cauſes and Propoſitions in Writing; and ſo delivered them to every one of his Counſellors apart, commanding them to return their opinions in the ſame manner to him, together with their reaſons; and (upon his higheſt diſpleaſure) not to communicate any piece of them with any other, before his firſt view. And after the receipt of them all, he would cauſe them all to appear in Council with him, and in his preſence to defend and maintain their ſeveral Judgements and Opinions with their beſt Arguments. A courſe certainly full of excellent freedome, and for many reſpects far better then that the youngeſt Counſellour ſhould ſpeak firſt; who ſometimes may be ſo skilful in Courtſhip of this nature, as to be led by books.

And beſides, it alloweth theſe Counſellours a fit time of deliberation to think upon what they have to ſay; it being dangerous in theſe Caſes,

or

or any of weight, either Divine Humane (be the Speakers never so ble) to be too forward to put the selves upon Extempories.

FINIS.